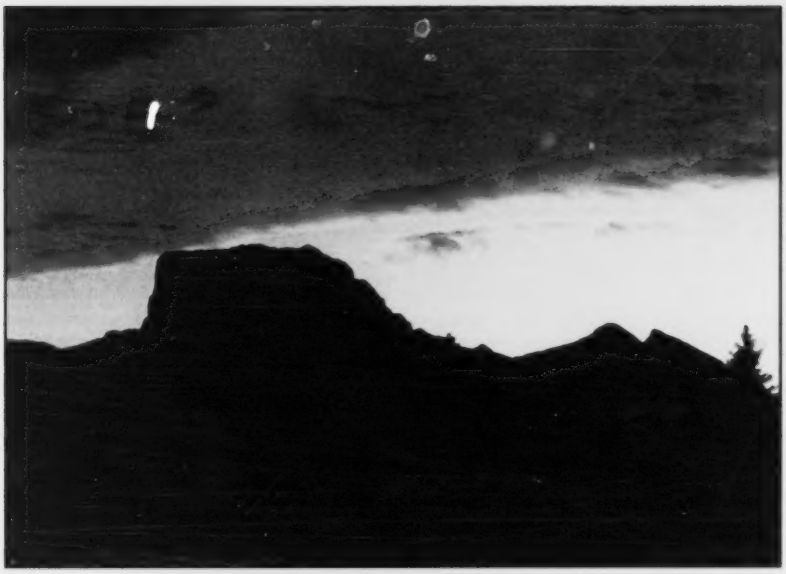
Arrow
Archaeology
Limited

SOUTH SASKATCHEWAN REGIONAL PLAN (SSRP) TRADITIONAL USE STUDIES PROJECT



Prepared for
Alberta Environment
Lethbridge, Alberta

Prepared by
Neil Mirau, Arrow Archaeology Limited, Coaldale, Alberta
and
Dorothy First Rider, First Rider Consultants and Associates, Standoff, Alberta

March, 2009

ISBN: 978-0-7785-8971-6 (Printed)
ISBN: 978-0-7785-8972-3 (On-line)
http://environment.gov.ab.ca/info/home.asp

ACKNOWLEDGEMENTS and INFORMATION

The Government of Alberta's receipt, use, and distribution of this document is not intended as the Government's admission or agreement to any specific content of this document or that any specific person cited in this document has any specific expertise.

The authors would like to thank Louella Cronkhite and Kim Shade of Alberta Environment, Randy Leal of Alberta Sustainable Resource Development and Blair First Rider of Alberta Culture and Community Spirit for their helpful reviews of drafts of this report and the suggestions they made to improve the report.

We also thank Andy Blackwater and Shirley Crowshoe, Blackfoot Elders, for providing information critical to this report and their helpful comments and to Mike Oka for conducting, recording and translating interview information.

We would also like to thank Duncan Lloyd of Gem of the West Museum for permitting us to photograph material from the museum. Thanks are also due to Cynthia Temoin and Don Boras of Arrow Archaeology Limited for their work in the completion of this project.

We thank Alberta Environment for retaining us to complete this project.

Report Authors Neil Mirau, Dorothy First Rider

Any errors of fact or omissions are strictly the responsibility of the authors.

Note: All photos and illustrations not credited in the figure captions in this report are the work of the authors or employees of Arrow Archaeology Limited or First Rider Consultants and Associates. Several photos used herein are public domain images, and these have been credited to their creators.

Cover Photo: Chief Mountain from near Lee Creek, photo by H. Mirau

Arrow
Archaeology
Limited

2315 – 20 Street Coaldale, Alberta, T1M 1G5
Telephone 403 345 2812
Fax 403 345 2817
Cell 403 330 8376
www.arrowarchaeology.com

EXECUTIVE SUMMARY

This report summarizes traditional knowledge and traditional land use information from the South Saskatchewan and Milk River Basins in southern Alberta. First Nations people have been present in southern Alberta for 12,000 or more years and during the vast majority of that time, they had an economy based on the acquisition of naturally occurring resources. Although bison were the most important resource to northern Plains people, a wide range of other plants and animals were used. Traditional cultures managed and thrived in the highly seasonal environment of southern Alberta by moving regularly during the annual cycle in order to take advantage of resources that were required for sustaining a successful and long lived culture. The economy and culture of indigenous people meant that they had to have a detailed, highly developed and thorough knowledge of the natural environment.

As people moved from one area to another, they relied on this detailed information and knowledge to make critical decisions to obtain resources and ensure the resources that they used were sustainable over both short and long terms. Cultural survival and continuance also meant that the seasonal round included important ceremonial and religious gatherings and these were as necessary as the economic system. Traditional knowledge and land use emphasizes the close linkage between the physical world and the spiritual world and the landscape of southern Alberta had and continues to have many sites of significant traditional economic and ceremonial or spiritual importance.

The report uses examples of important plant and animal resources and sites to illustrate and demonstrate the breadth and depth of knowledge and information required by First Nations peoples.

Traditional knowledge and traditional use is seen as an important component of sustainability and is viewed as compatible with modern ideas and ideals of environmental protection and preservation.

TABLE OF CONTENTS

Acknowledgments	ii
Executive Summary	iii
Table of Contents	iv
List of Figures	v
Introduction	1
Methodology	5
Culture History Overview	6
The Seasonal Round in Southern Alberta	9
Ecological Understanding	18
Animal Resources	20
Plant Resources	25
Food Plants	25
Medicinal Ceremonial Plants	35
Cultural Values of Land and Resources	45
Sites and Site Areas with Traditional and Economic Value	46
Sites and Site Areas with Traditional Ceremonial Value	54
Modern Resource Use Issues	67
Information and Research Gaps	71
Summary	73
References Cited	74
Suggested Reading	79

LIST OF FIGURES

Figure 1	Study area map	3
Figure 2	Ice Age Hunter	6
Figure 3	Traditional Blackfoot territory	7
Figure 4	Winter camp	10
Figure 5	Winter count	10
Figure 6	Dog travois	11
Figure 7	Buffalo bean	12
Figure 8	Seasonal round Kainaikoan	13
Figure 9	Blood summer camp	14
Figure 10	Sun Dance lodges	15
Figure 11	Seasonal round A. Blackwater	17
Figure 12	Buffalo pound painting	21
Figure 13	Bison grazing	21
Figure 14	Pronghorn	22
Figure 15	Purple Springs site	23
Figure 16	Black bear	23
Figure 17	Wapiti	24
Figure 18	Wapiti hide bag	24
Figure 19	Prairie turnip	26
Figure 20	Digging stick	28
Figure 21	Saskatoons	29
Figure 22	Drying saskatoons	30
Figure 23	Choke cherry	31
Figure 24	Crushing choke cherries	32
Figure 25	Arrowleaf balsamroot	32
Figure 26	Canada milk vetch	33
Figure 27	Cow parsnip	34
Figure 28	Buffalo berry	34
Figure 29	Double root	35
Figure 30	Sweetgrass	36
Figure 31	Sweetgrass braids	37
Figure 32	Sweetgrass offering	37
Figure 33	Scarlett mallow	40
Figure 34	Yarrow	41
Figure 35	Stone pipes	43

Figure 36	Tobacco plant	44
Figure 37	Rattle	45
Figure 38	Important sites map	47
Figure 39	Cypress Hills	48
Figure 40	Scraper	50
Figure 41	Ross site painting	51
Figure 42	Ross site area	52
Figure 43	St. Mary Oldman river valley	53
Figure 44	Crowsnest Moutain	55
Figure 45	Livingstone Range	56
Figure 46	Vision quest site	56
Figure 47	Okotoks Big Rock	57
Figure 48	Sandstone at Milk River valley	58
Figure 49	Rock art	59
Figure 50	Hoo Doos at Writing On Stone	59
Figure 51	Sandstone cliffs at Writing On Stone	60
Figure 52	Sweet Pine (Sweetgrass) Hills	60
Figure 53	Sun Dial Medicine Wheel	62
Figure 54	Sun Dial Medicine Wheel	60
Figure 55	Chief Mountain	63
Figure 56	Stone man effigy	64
Figure 57	Medicine wheel Red Deer River	64
Figure 58	Little Bow tipi ring	66
Figure 59	Elders at site near Head Smashed In	68
Figure 60	Elders at lek near Majorville	69

INTRODUCTION

The purpose of this report is to provide an overview and summary of traditional use within and traditional knowledge of the area encompassed by the South Saskatchewan and Milk River basins. Traditional knowledge and traditional uses are linked concepts and these concepts have been defined slightly differently by different interests. For the purposes of this report, the following definitions are considered appropriate. According to the United Nations Environment Programme (UNEP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO),

> [Traditional knowledge] can be broadly defined as the knowledge that an indigenous community accumulates over generations of living in a particular environment. This definition encompasses all forms of knowledge – technologies, know-how skills, practices and beliefs – that enable the community to achieve stable livelihoods in their environment (UNEP 2008).

and

> [Indigenous people]...living in and from the richness and variety of complex ecosystems, have an understanding of the properties of plants and animals, the functioning of ecosystems and the techniques for using and managing them that is particular and...detailed (Nakashima and Roue, UNESCO 2002).

Considering these descriptions, traditional uses and use areas and traditional knowledge can include:

- Places where naturally occurring animals are harvested for food, clothing, medicines, tools, and other purposes.
- Places where naturally occurring plants are harvested for food, clothing, medicines, tools, shelter and fuel.
- Places where rocks, minerals, and soils are collected for making tools,
- conducting ceremonies, and other purposes.
- Ecological knowledge of habitats and sites critical to the survival of
- important animal and plant populations.
- Corridors and areas which animals use to migrate, feed, mate, calve and winter.
- Habitation and economic practices sites, such as settlements, trading areas, travel and trade routes,
- Spiritual, religious and sacred places such as ceremonial sites, rock paintings and burial locations.
- Special places of history, legend, myth and other accounts about specific places.

  (list derived from a First Nations guidebook on traditional uses by Tobias (2000).

This report is necessarily brief and is not a detailed examination of traditional knowledge or traditional land use in southern Alberta. Rather it attempts to summarize the use of the area by indigenous peoples throughout the span of their existence and mostly prior to the onset of what is sometimes known as the Reserve period, that is, that period when First Nations were confined to Reserves. Life on reserves did not result in the abrupt end to traditional uses

or practices and in fact, in spite of reserve circumstances, traditional knowledge and traditional uses, customs and other elements of the long lived cultures of this region survived and continue to thrive.

In this light, this report briefly assesses the state of traditional knowledge as it exists in the present and attempts to identify data gaps that require additional research and work to fill. It should also be noted that this report attempts to treat the data and information it contains in an objective manner. Information and discussion about traditional knowledge and traditional land use is presented without reference to, and without prejudicing discussions, negotiations or other matters relating to modern land or resource claims or actions. While some of the material herein may be tangentially relevant to such claims and actions, it is not the intent of this report to defend, strengthen, weaken or otherwise affect or influence modern First Nations' sociopolitical issues.

We briefly discuss traditional territories as this examination is considered central to hypothesis that First Nations' presence in the South Saskatchewan and Milk Basins and the concomitant traditional knowledge of the area has a very long history. Discussions of traditional territory are not equivalent to discussing the location of the boundaries that define modern nation states. Plains and more generally North American First Nations people including the Blackfoot had traditional territories, but such traditional territories are not directly comparable with western (that is Euro-American) views of nation states and national boundaries. This issue is discussed further in following paragraphs of this report.

For the sake of this report, the South Saskatchewan and Milk) River basin and southern Alberta are considered essentially synonymous; however, it is to be noted that there is variation in the way that southern Alberta is defined. This report excludes the Red Deer River basin from consideration with the exception of a limited area in eastern Alberta where the Red Deer River empties into the South Saskatchewan River. The South Saskatchewan River basin and southern Alberta are, in anthropological, historical, archaeological and geographical terms, part of the northern Great Plains of North America. The Great Plains occupy approximately 2,640,000 square kilometres in the west central portion of the continent, east of the Rocky Mountains and west of the Eastern Woodlands (Wedel 1978, 203-205) and while there are significant ecosystem differences from north to south in the Great Plains, the area is characterized by extensive steppe grasslands and a highly seasonal climate.

The report focuses on traditional uses and knowledge that is necessary for a culture to survive and thrive in this environment. That is, the connection between cumulative traditional knowledge and environment and ecology is considered critical.

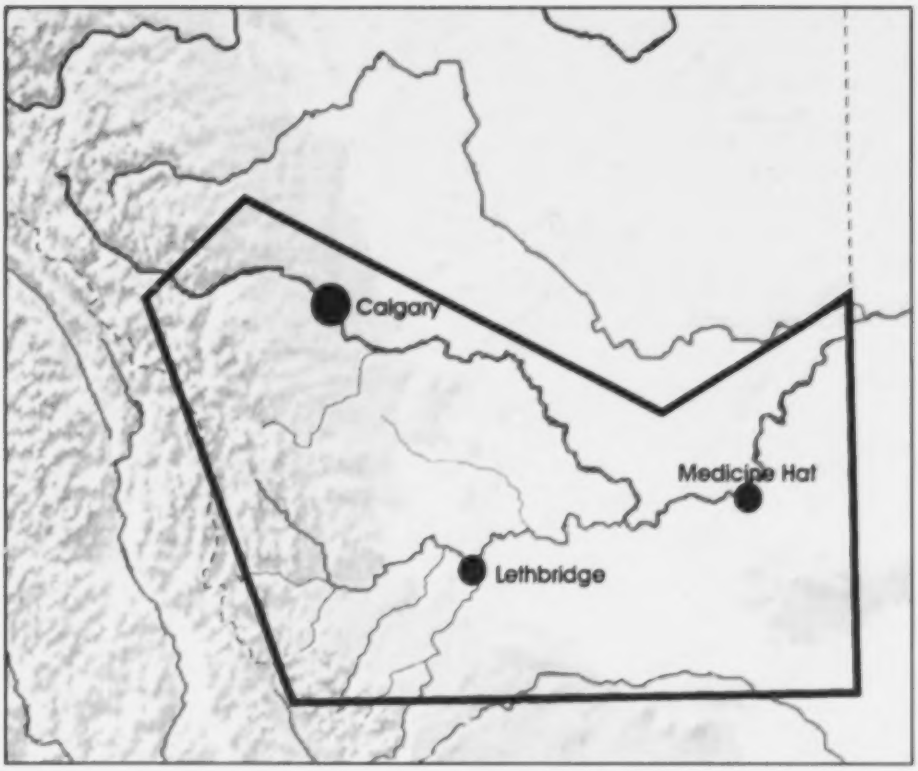


Figure 1. The approximate area covered by this report. Traditional knowledge information extends past, and is applicable to, other areas within both First Nations traditional territories and southern Alberta, however, we do not discuss herein any specific historical, archaeological or traditionally significant sites and areas outside of the area outlined above, except those that are directly relevant to, and an integral part of, data and information provided in this report.

This report provides numerous examples of traditional land use and knowledge, but is not in any way a comprehensive account of such knowledge. The examples discussed herein have been chosen based on discussions with First Nations, because they are commonly noted in the literature and these examples do not impinge, in our view, on intellectual property rights or "sacred" knowledge, that is, knowledge that is entrusted to select First Nations individuals. The examples are common in the literature and are intended to demonstrate the extent of ecological knowledge held by First Nations for this area.

We should note the traditional knowledge and information provided here is derived largely from information, reports and writing about Blackfoot people. There are several reasons why this is the case. The Blackfoot people were the dominant First Nations ethnic/linguistic group in the South Saskatchewan River Basin for at least the last several centuries; almost all of the anthropological works, ethnographies and histories written about this area by European scholars, traders and others in the last 200 years are primarily focused on the Blackfoot, and the First Nations informants that provided first

hand information for this report were Blackfoot people. Having said that, it is our view and that of many anthropologists, historians, First Nation Elders and other experts that in terms of traditional knowledge of this area, the traditions of the Blackfoot would have been similar, especially with reference to economic matters and matters of land use, to other groups who may have periodically been present in this area. Again though, perhaps the most cogent point is that the South Saskatchewan River Basin is a central location within virtually all descriptions and definitions of Blackfoot traditional territory. That is, while there is some disagreement over for example, how far the Blackfoot commonly ranged north of the North Saskatchewan River or how far south of the Missouri river their traditional territory extended, there is no disagreement that the South Saskatchewan River basin was in the central part of their territory since, as a Blackfoot Elders would put it, "time immemorial".

Elder Andy Blackwater of the Blood Tribe describes traditional Blackfoot territory like this (pers. comm., informant interview):

> These days we have talked much about Northern Pikunni[1], Siksika, Akainaiwa, (Southern Pikunni), [and] how all four are related and how we have come to occupy the lands that we do today. I have heard the Elders say we were put here to watch and protect these lands. The Belly Buttes of the Blood Reserve, the Porcupine Hills of Northern Pikunni, and Blackfoot Crossing at Siksika and all points north. We were put here to watch over these lands [and those of] the Southern Pikunni. All [Blackfoot are] very fond of these areas, they grew up there, they gain much knowledge there. That is why we say that is where the spirits of our ancestors are. We feel their presence there. We say we are going home. We are all a part of the Traditional Blackfoot Land. Today if we travel far maybe to Siksika we say we are home [or to] Edmonton, the North Saskatchewan River... we say we are home. West to the Rocky Mountains and south to Yellowstone River a person will know they are home, even though their house is far from where he or she is. This is how I was taught. We feel a part of this land.
>
> Now we as Akianaiwa, our land base is very large. I [learned from] Elders that I directly heard [as] they talked about [our territory that included] the North Saskatchewan River from where [its] head waters are in the Mountains...to where it meets the South Saskatchewan River and [our territory extends] south east of the Great Sand Hills. [The boundary of] the Blackfoot territory [goes] south to the land of the Crow Nation [near] the north corner of Wyoming and [then] west to the Yellowstone River near the Shoshone Nation. West of the mountains...is out of the Traditional Blackfoot Territory... is what I was told. I did not learn this from books. In our ways we had land maps. That how it was marked, the Blackfoot people used rivers, hills, and

[1] Pikunni (once referred to as "Peigan"), is alternately spelled "Piikani"

> the mountains those are what we refer to [the Blackfoot people say]are lands maps--they are written on the earth.

The Blood Tribe, along with Siksika, Pikunni and Amiskapipikani, are members of the Blackfoot Confederacy. The Amiskapipikani are more commonly referred to as the Southern Blackfoot. Blackfoot is the common language spoken by the Blackfoot Confederacy and they have the same belief systems and practice the same basic traditions. The Blackfoot term for the members of the larger Blackfoot linguistic group is often given as *Siksiksaitsitapi*. Although all of the sites and resources discussed in this report have Blackfoot names and terms, we have for the most part, not noted those terms and names. Blackfoot is a complex and difficult language and as the Blackfoot Gallery Committee (2001, 85) notes "Blackfoot language is structured...differently than English, consequently it is difficult to find exact translations. In addition, there are few widely accepted conventions for spelling". See the suggested reading section.

Methodology

The methodology utilized for the completion of this report consisted of two primary endeavours. The first was to attempt to obtain information on traditional uses and traditional knowledge from first person sources, primarily First Nations Elders from southern Alberta. We contacted all Treaty Seven nations, advised them of the nature of this project and research, and asked if they were willing to contribute information. Several of them indicated a general interest in the project and concurred with the importance of including traditional information in this and similar projects, but felt that the time available was too short for them to provide required information. We did, nevertheless, obtain some first person data via personal interviews and discussions with First Nations Elders. These Elders had the opportunity to discuss traditional knowledge and present their views in Blackfoot which was then translated and transcribed. This information is discussed further below as is other information with respect to our efforts to obtain first hand information.

The second endeavour was research of the published literature and unpublished reports that deal with, in very broad terms, traditional knowledge and traditional land use in southern Alberta and more broadly the Northern Great Plains. Literature and reports that were examined included academic anthropological and ethnographical material, both books and journal articles, books and articles written by or based on first person interviews with First Nations people from southern Alberta, biographies and autobiographies, historical accounts, reports, books and journal articles written by and/or based on the personal journals of early European traders, explorers and others who visited the Great Plains and had direct interactions with First Nations people prior to the onset of the Reserve period, anthropological, archaeological and historical publications considered relevant to an examination of traditional uses and traditional knowledge. In addition we examined published and unpublished sources for maps, historical photographs and other illustrations considered relevant to this report.

The report is presented in the following sections: Culture History Overview, Ecological Understanding, Cultural Values of Lands and Resources, Important Traditional Use Sites in the South Saskatchewan River Basin, Modern Resource Use Issues, Information/Research Gaps and Summary. A references cited section is included at the end of the report, along with suggested reading section.

Culture History Overview

The record of the presence of humans in what is now southern Alberta goes back at least 12,000 years. We do not discuss debates regarding the arrival of humans in North America, except to say that archaeological and scientific data and information indicates that the first humans in North America were *Homo sapiens sapiens* and that they arrived here from Asia sometime between about 35,000 and 15,000 years ago. The traditional First Nations view is that the first people in North America have always been here. The density of the human population in southern Alberta anytime prior to the beginning of the 20th century was low compared to modern population densities; however, there is little doubt that over the last 12,000 years, hundreds of thousands, possibly well over 1 million people have lived and died within the South Saskatchewan River basin.

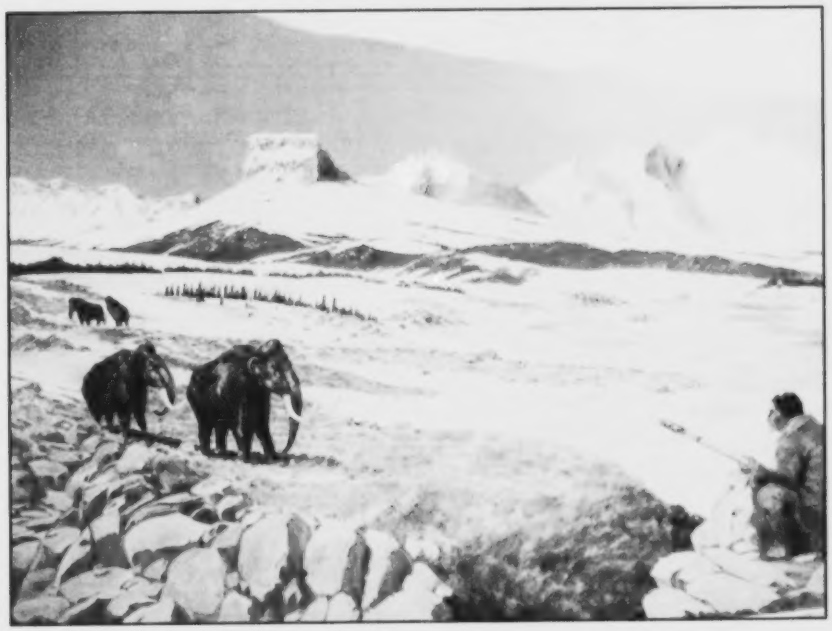


Figure 2. Some of the first humans in what is now southern Alberta were here before the end of the last Ice Age. These people would have hunted now extinct Pleistocene animals such as mammoth, camel, extinct forms of bison and other large mammals. This depiction is of hunters near what is now the St. Mary River in southern Alberta. Note iconic Chief Mountain. Original painting by Judith Nichol, Gem of the West Museum, Coaldale.

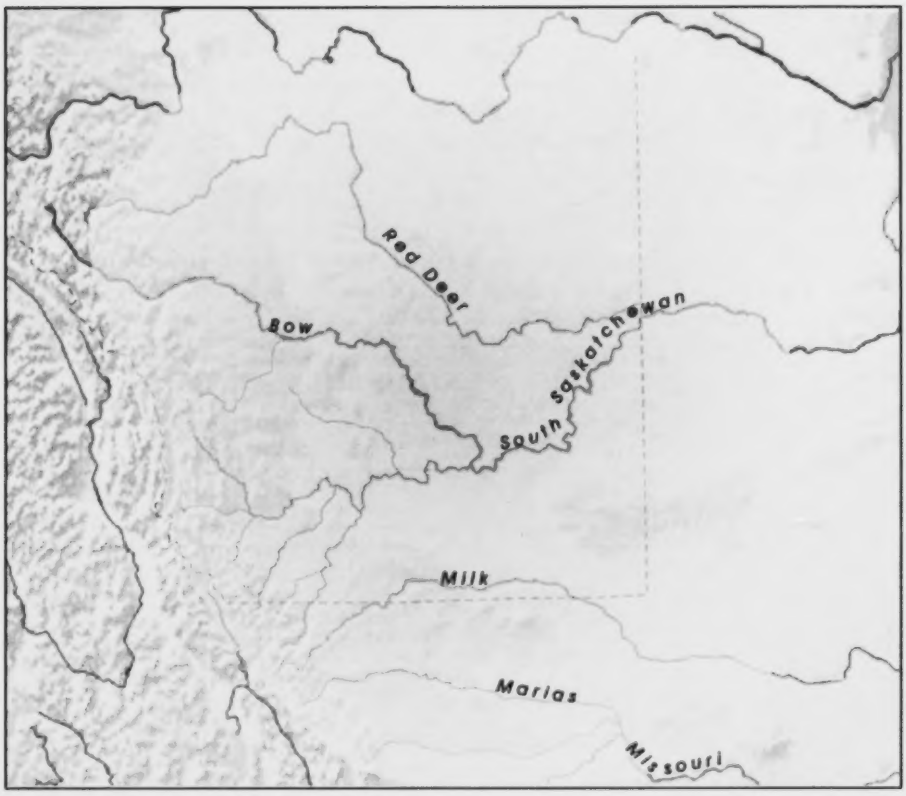


Figure 3. The shaded area represents Blackfoot traditional territory. Major rivers are noted. The precise boundaries of a First Nations traditional territory are difficult to define with a high degree of precision. See text for additional comments. This southern boundary of this map ends at the Missouri River. Most accounts of Blackfoot traditional territory indicate it extends south to the Yellowstone River. As this is well outside of the area considered in this report, the map does not extend to the Yellowstone.

The economy of the indigenous population of the South Saskatchewan River basin and elsewhere on the Northern Great Plains of North America was based on the acquisition of naturally occurring resources. This economic system meant that humans had to clearly understand the environment and maximize use of available natural resources. Without going into anthropological theory in detail, human cultures and economies change based on external and internal pressures and opportunities. The Plains of southern Alberta presented a rich, though highly seasonal, environment. The stable economic system of this area was based on the fundamental fact that there was no need to change economies based on internal pressures and there was limited opportunity to do so, even if some pressure for change had existed. The environment sustained the cultural system and provided the parameters within which culture operated. Detailed knowledge of the environment by the humans was paramount to survival of culture.

This inference of close relationship between environment and cultural systems is based on anthropological theories of environmental possibilism and cultural ecology originally developed by noted anthropologists Franz Boas, Robert Lowie, Alfred Kroeber and Julian Steward among others (as cited in Kormondy and Brown 1998). These pioneering anthropologists all spent time in western North America living with First Nations people and much of modern anthropological thought about the Plains of North America and elsewhere is a result of the anthropological contributions these individuals made based on their experiences. Briefly put, environmental possibilism is the view that cultures adapt and evolve based on the possibilities and opportunities an environment provides and as those possibilities are mediated by a variety of factors, such as competing cultures and internal cultural dynamics. Most of the ethnographical and ethnological information reviewed during the course of this project has been framed within the general theory of environmental possibilism and the related idea of cultural ecology.

The economy of northern Great Plains First Nations for thousands of years prior to the arrival of Europeans was focused primarily, though not exclusively, on bison (Wilson 1992, Oetelaar, 2008). The bison was central to the economy of the people of southern Alberta in manner similar to the way the cereal grains were central to the agrarian economies of Europe during much of the same time period. This reliance on bison and other natural resources meant that First Nations were necessarily mobile and that relatively small numbers of people used large territories.

Bison, in their natural state, are gregarious, quasi-migratory animals moving from one place to another during the course of the annual cycle and humans needed to be where the bison were for at least much of the year. As Oetelaar (2008, 3) states:

> ...survival of [First Nations people] depends on an intimate knowledge of the ecological relationships within the biophysical environment. Successful adaptation to the grasslands of North America [including southern Alberta] would logically entail the development of appropriate strategies to harvest bison, the single most abundant resource available in this ecozone...thus the seasonal movement of humans across the landscape is predicated on the migratory habits of the bison.

Despite the reliance on bison, people required other resources to live and to sustain their culture. An example is the need to obtain other materials such as wood for their lodges. An equally significant need was the need to congregate in large groups for some period during the year, to renew contacts, form alliances, and build relationships. These latter needs are equally important in terms of cultural survival to the food quest. As a result of this constellation of needs, common to all human societies, northern Plains people including those of southern Alberta practiced what has commonly been termed the seasonal round.

THE SEASONAL ROUND IN SOUTHERN ALBERTA

A seasonal round is simply the more or less regular movement of humans on the landscape to take advantage of seasonally available resources and to maintain contact and relationships with other members of the culture. The more seasonal the environment is in which a culture lives, generally the more important the seasonal round. On the highly seasonal plains of southern Alberta, people had to be where the important resources were when those resources could be most easily and efficiently acquired and had to be in protected and relatively secure areas during the cold season when resources were more difficult to acquire and special needs, such as adequate fuel for fires to keep warm, was plentiful.

Moving from one place to another during the course of the year to be in the right place at the right time required considerable advance planning. The seasonal round was made more complex because groups separated into small groups for portions of the year and came together in larger groups at other times of the year. These cycles of agglomeration and dispersal were as central to cultural survival and renewal as was the acquisition of food and other resources.

The climate of the northern Plains can be harsh and although there has been substantial climate change in what is now southern Alberta over the last 10,000 years, the dominant climate pattern has consisted of cold, relatively long winters, warm, relatively short summers and often highly variable spring and autumn seasons. Life during the summer was easier than during the winter; however, clearly preparation for long winters was a major consideration throughout the warm season.

There is a widely cited account of a typical seasonal round. The account is related by anthropologist C. C. Uhlenbeck (1911) and was a description given to him by a Piikani man called *Kainaikoan*. Kainaikoan is identified as Jim Blood by Elder informant Shirley Crowshoe interviewed for this report. Although Kainaikoan lived during the Reserve period and life for him was much different than before the arrival of Europeans on the Plains, he described a seasonal round that had been practiced by his ancestors before the Reserve period.

Figure 4. This photo is said to be a winter camp along the Elbow River and was taken in the 1880s. Original photograph by Boorne and May from Provincial Archives of Alberta.

Figure 5. A Pikunni winter count. Each symbol depicts an event that occurred some time during a year that was considered memorable. Each of the symbols on this winter count therefore represents a year. The winter count was kept on a hide. Clearly many years are represented on this hide. This winter count hide is at Head-Smashed-In Buffalo Jump.

Kanaikoan, describing an annual cycle of movement stated that winter was spent in the Marias River valley of northern Montana. This river valley, not

unlike areas of the Oldman, Bow, South Saskatchewan and other southern Alberta river valleys, offered shelter from winter weather and its gallery forests of poplar and other trees provided abundant fuel and shelter. Water was readily available in the river. The river valley would also have been an attractive wintering area for at least some animals upon which humans relied. In spring, once snow cover was gone and spring plant growth was underway, Kainaikoan's ancestors moved north toward the Sweet Pine (Sweet Grass) Hills to hunt bison bulls that were starting to move out of their wintering areas in the river valleys and parkland of Alberta to take advantage of new grass. A common plant called the buffalo bean (*Thermopsis rombifolia*) in southern Alberta, Saskatchewan and Montana and which blooms in May and June was an important traditional indicator for the commencement of the spring hunt. The name "buffalo bean" is taken from its role as an important sign for the Blackfoot of this area to start the spring hunt. The plant is known as the golden bean or golden pea in other parts of North America.

Figure 6. Clearly this photo was taken after the horse was well established on the Plains, but just as clearly as demonstrated here, dogs were still important in the movement of goods and would have been useful in the seasonal round movements. Original photographer unknown. This image reproduced from Hungry Wolf (2006).

If bison were moving out of their wintering areas early Kanaikoan's people would hunt at the Sweet Pine Hills; if not, the group continued to move northeast toward the Cypress Hills. After this initial spring foray, which would have been important to replenish meat supplies that were depleted over the long winter, the group moved to the Pakowki Lake/Manyberries area in southeastern Alberta to continue the hunt and pick early ripening berries. The name of the hamlet of Manyberries and Manyberries Creek is derived from the Blackfoot term for many berries, *akoniskway*. Interestingly and not coincidentally, this part of southern Alberta is the warmest and driest part of the South Saskatchewan River basin; berry plants would bloom early and their fruits would ripen here before areas to the west and north. A variety of

berries and likely other early maturing plant foods would have been acquired in this area.

Figure 7. Buffalo bean in bloom. Photo by A. Schneider, USDA, (2009)

As the warm season progressed the group would move north to Buffalo Head (now known as Bulls Head in the Seven Persons area) to hunt bison and gather more plant foods. One of most important food plants to the indigenous population of southern Alberta, the prairie turnip (also known by other common names such as Indian bread root), *Psoralea esculenta* would have been harvested in this area in early June when it first flowers. The prairie turnip and other plants are discussed in more detail in the Ecological Knowledge section.

This Buffalo Head area has rolling hills, some sheltered valleys such as Bullshead Creek valley, Red Rock Coulee and Peigan Creek and had significant numbers of wapiti or elk *(Cervus canadensis*) and Kanaikoan's ancestors would gather plant foods and hunt bison, elk and probably other animals such as deer (e.g., mule deer *Odocoileus hemionus*), and pronghorns (*Antilocapra americana*) in the area. The group then moved back to the Cypress Hills to acquire lodge poles, travois poles, wood for backrests and pine resin. Although not specified by Kanaikoan or detailed by Uhlenbeck, undoubtedly this portion of the seasonal round would include harvesting other plants in the Cypress Hills which do not commonly occur in the open grasslands, such as cow parsnip (*heracleum lanatum*), a plant used both for dietary and medicinal purposes.

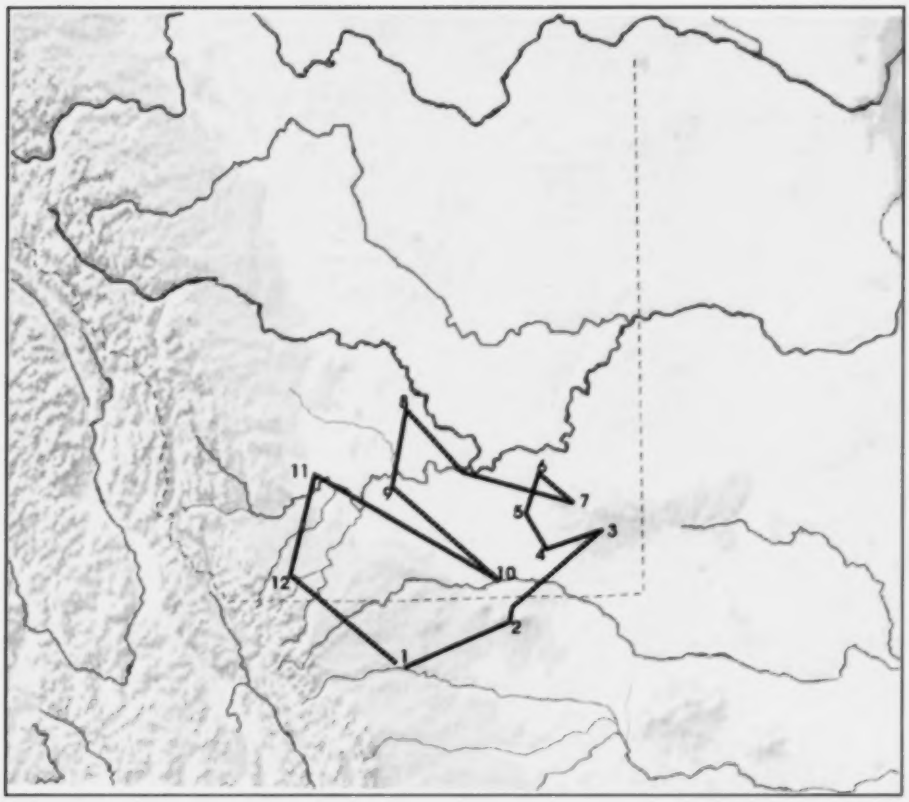


Figure 8. The seasonal round of Kainaikoan (Jim Blood) as told to Ulhenbeck (1911). Kainaikoan's people wintered at 1) the Marias River and with spring moved northeast to 2) Sweet Pine Hills, 3) Cypress Hills, 4) Pakowki Lake/Manyberries 5) Bullshead and 6) Bullshead Creek/highlands west of Cypress Hills to hunt bison and gather plant foods. Then they headed to 7) Cypress Hills to gather lodge poles and moved northwest to 8) "Where the women society left their lodge pole" (probably a reference to Sun Dance—Shirley Crowshoe, Piikani informant for this report and therefore hypothetically placed near the Majorville medicine wheel). The group then moved south to 9) Green Lake (location uncertain) and 10) to Writing On Stone and 11) "Woman's point" (speculatively identified by the author's of this report as Women's Buffalo Jump, north of Fort Macleod to hunt bison and continue to gather plants as the summer progressed. The group then headed west to the foothills and mountains to gather more wood for lodge poles and other purposes before returning to the Marias River valley for winter.

Following this foray into the Cypress Hills, Kanaikoan's ancestors moved west to what he described as "Where the Women Society left their lodge pole", likely a reference to Sun Dance grounds and an area where many groups came together during the year to meet. This would have occurred during the most plentiful time of year when many plant foods were available and where communal bison hunts could occur. This coming together of small groups probably occurred in mid June to mid July before the bison rut (that is approximately mid July to mid August) when mass bison hunting would have been difficult (Frison 1978, Morgan 1979). Kainaikoan does not give the exact location of this seasonal agglomeration, but one reasonable supposition is an area on the west side of the Bow River south of Gleichen in the general

area where the Majorville medicine wheel is located. There is significant archaeological evidence in the Majorville area that it was an important gathering place for the small bands of Blackfoot to agglomerate in the summer (Moors, 2007). A number of other similar places where people may have gathered to hunt bison, renew acquaintances and not incidentally to meet potential mates are discussed in the Traditional Use Sites section. The central element of the summer gathering would have been the Sun Dance.

While religious knowledge and practice is part of traditional knowledge, we are focusing on other elements more directly related to land use in this report. We briefly discuss the Sun Dance in subsequent sections of this report; however, it is worth noting that virtually every major work we examined notes the prominent position the Sun Dance takes in Blackfoot culture. For example, McClintock (1999, 172) says "[The Sun Dance] was...the great annual religious festival...the supreme expression of [Blackfoot traditional] religion".

Figure 9. A large Blood summer camp. This image taken by McClintock (McClintock 1999, 365) clearly is a very large gathering. The adoption of the horse may have permitted larger groups to congregate in the summer as horses allow people to travel greater distances, however there is good archaeological evidence for large scale gatherings in the pre-horse days.

The Sun Dance itself may have lasted 7 to 12 days and this festival was probably accompanied by other activities both before and after the actual Sun Dance ceremony; however, by mid summer, probably late July or early August, Kainaikoan's group made its way to the Writing on Stone area of the Milk River valley to hunt bison after the rut, harvest plants and engage in other activities. Root plants would have been available at this time of year as well as later ripening berries. The group would gradually move west

upstream along and in the Milk River valley to continue to hunt bison, deer and antelope. By this time, early fall would have arrived and the group continued west to coniferous forests of the foothills and mountains to obtain additional wood for lodge poles and other uses and to continue to hunt bison, elk and other animals.

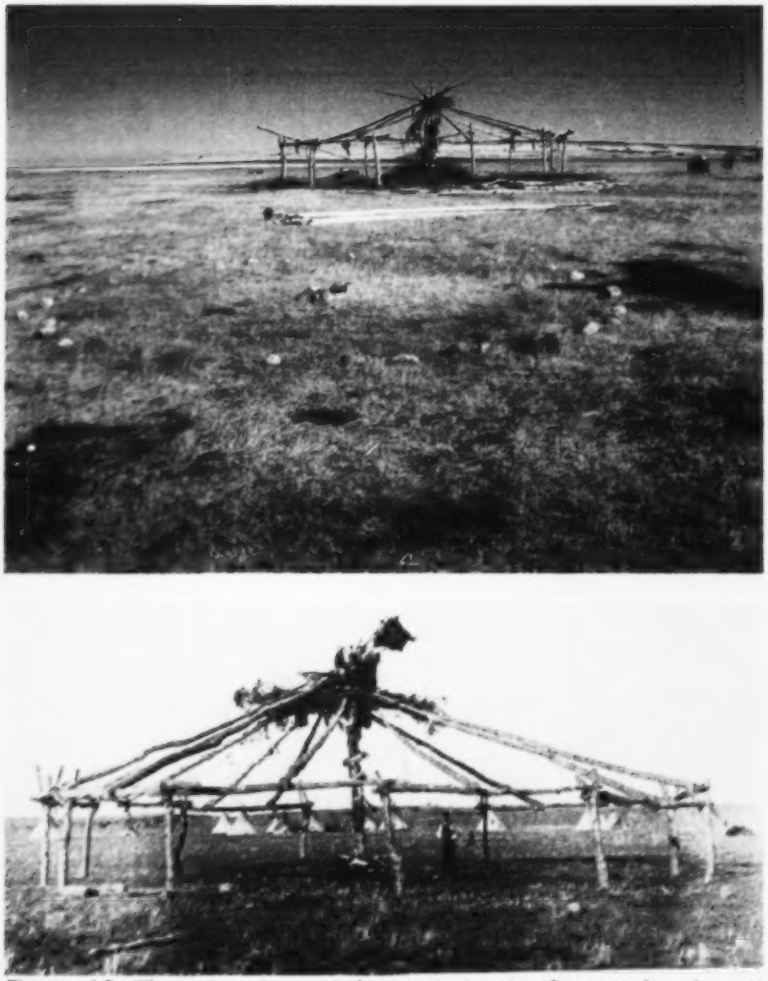


Figure 10. These two images demonstrate significant cultural continuity through time. Both images are of lodges at Sun Dance grounds after the end of the Sun Dance. The bottom image was taken in 1893 and top image was taken in 2007. Bottom image from Mountain Horse (1989, 61).

Although there is no specific mention of it by Kainaikoan, Head Smashed In and other communal bison hunting locations may have been utilized at this time as the group moved toward the west in continued preparation for winter. Berries and other plant foods also ripen later in western part of southern Alberta; with the general westerly movement towards the end of the warm season, people could exploit the later ripening plant foods efficiently. After the final lodge pole gathering and probably intense efforts to

harvest as much plant and animal food as possible, it would be late fall, perhaps early November, still before the onset of widespread snow cover and very cold temperatures. During this period the group returned to the Marias River valley to prepare the winter village. Winter was mostly a time to stay in one place and wait out the cold weather. During the cold season groups would make tools, clothing and other necessities and prepare for next year's travels. An important winter activity was acquiring fur bearing animals such as wolves, coyotes, fox and other animals when their coats were prime. In addition to bison hide and the hides of ungulates, furs were important as articles of winter clothing, bedding, decoration, ceremony and for other purposes.

Winter could be difficult and without adequate food, starvation and hardship could occur. It was therefore of critical importance to know the landscape and know where one could turn if the most desirable foods were in short supply.

Again this description of an annual seasonal round that took in a significant portion of the South Saskatchewan River basin is a widely cited example, but there are others. Andy Blackwater (Shot On Both Sides), a Blood Elder, has outlined other seasonal rounds that started from favoured wintering areas north of the modern Canada-U. S. border. Mr. Blackwater specifically noted three important wintering areas, one near where the town of High River is now located on the Highwood River, one along the Oldman River near the modern town of Fort Macleod and a third near the confluence of the Oldman and St. Mary Rivers just south of the City of Lethbridge. From these wintering areas, Mr. Blackwater indicates that with the coming of spring, groups would move south generally along the St. Mary River and then south and east towards the Sweet Pine Hills to hunt bison bulls. The group then moved north towards the Cypress Hills, again to take advantage of the more early ripening plants in that area and to gather lodge poles, and poles for travois and other uses. From there the group moved back to the west to hunt, participate in Sun Dance and then continued west to hunt (perhaps at Head Smashed In and Women's Buffalo Jump). This group continued west to the foothills and eastern slopes of the Rockies before returning to their wintering locations. Mr. Blackwater discusses the use of the stars for navigation and other environmental and ecological clues and these are discussed in more detail in following sections.

There would have been other, though broadly similar seasonal rounds practiced by other groups in southern Alberta, which followed the practice of wintering in areas where fuel was available, (and possibly where bison and other animals wintered as well), moving onto the prairie uplands, probably spending the earlier part of the warm season in the east of the territory to take advantage of an earlier warm season and moving north and west over the course of the summer and fall to exploit resources and then back to wintering area in late fall. There is, for example, significant archaeological evidence of major wintering camps in the Oldman River Valley between Lethbridge and Taber. Groups that spent the winters here probably met ancestors of Kainaikoan at ""Where the Women Society left their lodge pole".

How many of these groups came together at that and similar locations for the Sun Dance and for communal bison hunting is uncertain; however, there are accounts of hundreds of lodges in one place during summer and fall. There are many ways of calculating numbers of people in these agglomerations, but a typical large village may have had 200 or more lodges and the number of people per lodge may have numbered 6 to 8; therefore a given village could have been 1200 to 1800 persons (Ewers 1955, 1958, Kidd 1986, Verbicky Todd 1984, Uhlenback 1911, Vickers 1991)

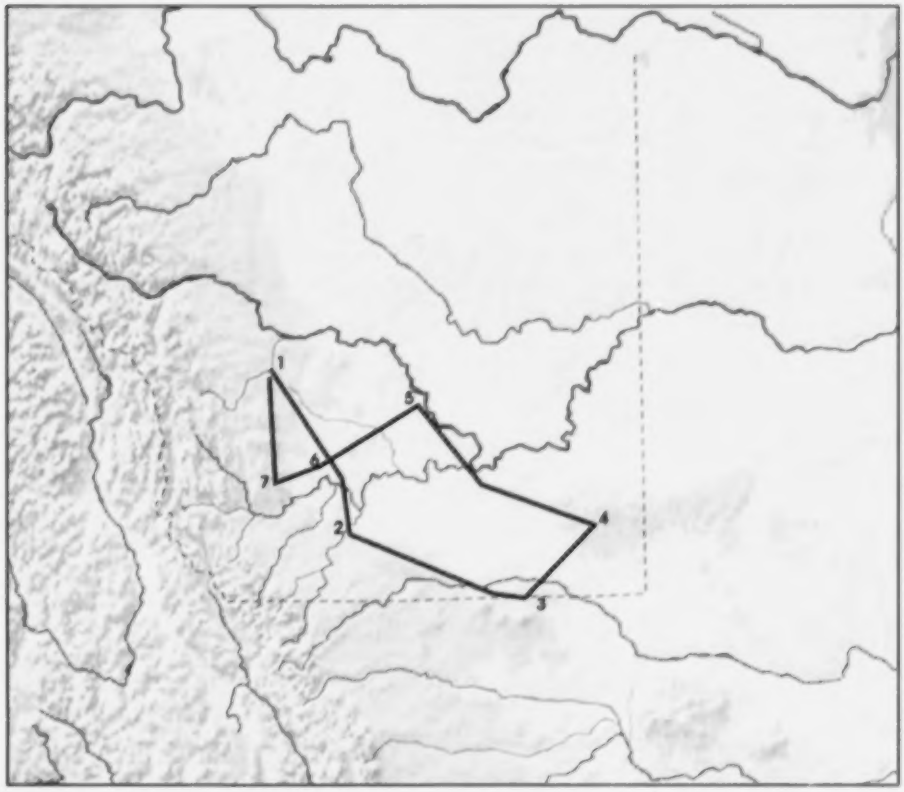


Figure 11. Another example of a seasonal round from informant A. Blackwater for this report. This seasonal round is broadly similar to the one described by Kainaikoan. The wintering location shown here is along the Highwood River near present day High River. With the arrival of spring, the seasonal cycle of movement is south to the St. Mary River (2) and southeast to the Sweet Pine Hills (3) to hunt and gather wood for lodge poles at Cypress Hills (4), then likely northeast to the Sun Dance area (5), southwest to hunt at Head-Smashed-In/Women's Buffalo Jump (6) and west to 7) to collect plants and more wood for poles before returning to the Highwood River wintering area.

ECOLOGICAL UNDERSTANDING

Ecological understanding and knowledge of the landscape and its resources was based on the accumulation of generations of experience and this information was passed down largely through children learning from parents, grandparents and other Elders. The knowledge gained from an older generation was enlarged and expanded on based on personal and community experience. Among the most critical ecological knowledge was that related to obtaining food, shelter and clothing. Like agrarian cultures in climates with significant seasonality, Plains cultures had to be acutely aware of the timing of the seasons and the shifting availability of resources through the annual cycle. Other elements of cultural continuance and stability, such as the acquisition of mates, was necessarily linked to ecological knowledge. For example during times of the year when resources were plentiful, groups of people could gather together for social interaction. During leaner times groups were fragmented into small social units such as extended families in order to not deplete the resources in one area. Agglomerations, which permitted unrelated females and males to meet, were therefore critical for cultural renewal and survival. Marriage also enlarged community bonds and extended one's kin group. Kin groups were then, as is the case in almost all non-Western cultures now, critical for survival and well being.

"Survival depended upon cooperation, skill and the sustainable use of resources over hundreds of years" (Ross 2008, 23).

The ecological understanding of the First Nations of southern Alberta is clearly encyclopedic and cannot be provided in detail here; however, we have endeavoured to provide insights to this understanding based on our review of the literature, first hand informant interviews and related data and information.

Many first hand observers of the Plains of southern Alberta agreed that it was a vast expanse of territory replete with plants and animals, before the arrival of Europeans. George Bird Grinnell's description of the northern Plains is similar to many other early European observers. He states (1912, 226):

> The Blackfoot country probably contained more game and in greater variety than any other part of the continent. Theirs was a land whose physical characteristics presented sharp contrasts. There were far-stretching grassy prairies, affording rich pasturage for the buffalo and the antelope; rough breaks and bad lands for the climbing mountain sheep; wooded buttes, loved by the mule deer; timbered river bottoms, where the white-tailed deer and the elk could browse and hide; narrow swampy valleys for the moose, and snow-patched, glittering pinnacles of rock, over which the sure-footed white goat took his deliberate way. The climate varied from arid to humid; the game of the prairie, the timber, and the rocks, found places suited to their habits. Fur-bearing animals abounded. Noisy

> hordes of wild fowl passed north and south in their migrations and many stopped here to breed.

The South Saskatchewan River Basin was rich in resources; however, to ensure the ability to use those resources with efficiency and to ensure the continued cultural and ecological survival, critical knowledge was necessary.

The story of the seasonal rounds related by Kanaikoan and Andy Blackwater reveals many important elements of ecological knowledge. This knowledge includes, among other things, seasonal patterns of animals and plants, short term weather conditions and longer term climatic conditions, and what in modern terms would be called earth science and biogeography. Movement across the Plains required a detailed knowledge of not only what resources are where, but knowing when those resources are available in a given location. Prediction is important and this is only possible through close observation and the passing on of accumulated knowledge.

The following provides a general summary of the nature and extent of ecological knowledge that would have been necessary for survival in this region and this knowledge is a primary, though not the only, component of what is commonly referred to as traditional knowledge. We start this section with a brief look at a report written by Walter McClintock (McClintock 1999) that describes a discussion he had in 1890s with a Pikunni Chief. It was an entreaty to McClintock and Kionama, a Blackfoot friend and guide of McClintock's by Brings-Down-The-Sun, the Piikani Chief during McClintock's visit to Bring Down the Sun's camp. (It is interesting to note that Brings Down the Sun was the maternal grandfather of noted Piikani Elder Joe Crowshoe.) McClintock reports the speech from Brings Down the Sun as follows (1999, p. 386).

> We pitch our tipis in this grove of cottonwoods [along what is now called the Oldman River] every summer to gather sarvis [saskatoon] berries for our use when the snows are deep. You will find many kinds of berries on all sides. You can eat them now or gather and dry them for your winter supply just as we do. *I ask, however, that you will be careful not to injure the trees, or break the branches of the berry bushes. I make this request because I am looking ahead for my tribe. I am anxious to preserve these big trees and berry bushes for our children. I am accustomed to admonish my people in this manner, warning them not to be short sighted.* (emphasis added) [Others] once had many large trees along their river, but they cut them down for firewood. Now their country is bare and they have few berries. I am continually advising my people not to cut down trees from along the river, but to haul their wood from the mountains. They have followed my advise and we still have our big leaf trees (cottonwoods)... the spear leaf trees (balsam poplar)..., the round leaf trees (trembling aspen)...and brush sticks (willows)

Note: McClintock's *The Old North Trail* from which this quote is taken was originally published in 1910. The 1999 citation is, of course, a reprint. See annotation in the references cited section.

This was an admonishment given in the 1890s, long before the modern era of environmental awareness and the need to preserve nature and native species. If there is a single word that describes Brings Down the Sun's advice to McClintock it is "sustainability". Ecological knowledge as reported on herein discusses the need to know such things as where plants are and when they can be harvested; however, it also includes the idea of taking what is necessary for survival and ensuring not to over exploit resources so that they will continue to sustain the people that rely upon them over the long term.

Animal Resources

Indigenous cultures of southern Alberta had an economy focused on animal resources, primarily bison (*Bison bison bison* and its now extinct ancestors) that dates back 10,000 or more years. The centrality of bison to traditional First Nations economies of this year is well understood, well documented and well researched and is not repeated here. There are a significant number of resources that document and research the relationship between humans and bison in Alberta and elsewhere on the Great Plains. This report does not assess that relationship except to note that the human-bison relationship on the northern plains in the traditional period was far more complex than a predator-prey one. This again has been noted elsewhere, but some researchers and First Nations experts have emphasized the role humans played in managing and sustaining the bison population. Bison were not, of course, domesticated, but the animals were aided in subtle ways to ensure they remained a sustainable resource for humans.

The use of fire to help increase forage and encourage grasses preferred by bison was one such measure. Burning of grass increases yields in the burned area for two growing seasons after the burn (Arthur 1975, 30) and helped to maintain the dominance of short grass varieties in southern Alberta. These varieties are more nutritious than taller grasses and preferred by bison (Bamforth 1988, 58). The use of fire drew animals to the burned area to forage on fresh grass and new grass appears earlier in the spring in burned areas (Duke 1991, 52). Selective hunting may have removed less valuable animals such as males, while ensuring that a sustainable breeding stock was maintained. Duke infers the relationship between humans and bison in particular, but probably between bison and other important resource animals approached animal husbandry as outlined by Higgs and Jarman (1972, 8) where they define husbandry as something "which stresses the important human element in man-animal relationships and which would indicate in a single category pastoralists, herders, herd-followers and the like, where some form of intentional conservation was practiced." Phrased thusly, indigenous cultures could be said to have been engaged in husbandry in light of the need to ensure a sustainable resource yield over the long term.

Although the bison were the central element of the traditional and long-lived indigenous economy of southern Alberta, many other native animals were exploited for food and other purposes. The list of animals exploited is large and is not dealt with in this report; however, the effective use and

exploitation of animals is the subject of a great deal of traditional ecological knowledge. Detailed knowledge of animal behaviour and habitat was required, as was knowledge of the animals' competitors and its life cycle. For example, skins and furs were critical for shelter and clothing, as well as other purposes, and knowing when to harvest the animals in peak condition, as well as what individuals to harvest and what animals to leave to ensure a sustainable animal population were critical elements in this knowledge.

Figure 12. Paul Kane's *A Buffalo Pound*, ca. 1850. (Royal Ontario Museum)

Figure 13. Bison on the short grass plains of southeastern Alberta.

Figure 14. Pronghorn antelope. US Fish and Wildlife Service.

Humans could not and did not randomly wander the landscape; rather, they planned all moves in advance and in consideration of the animal behaviour and other factors. For example, during the common drought years on the plains, special measures would have been required to obtain sufficient animal as well as plant resources to survive and ensure populations were sustained for subsequent years. There would also have to have been detailed knowledge of animals not commonly used for food, such as - in the case of the Blackfoot - fish, so that those animals could be exploited if other food sources were in short supply or failed due to disease, over predation, environmental disaster or other catastrophic events.

Figure 15. This painting is a depiction of an important bison hunting site south of Purple Springs. Bison and perhaps other animal were hunted and perhaps trapped in at a watering hole. The site was used thousands of years ago and this site may have been an important stop on the annual seasonal round. Antelope were also in important game animal and antelope hide clothing was favoured as warm weather clothing as the hides were thinner than bison hides and other large game. The Sweet Pine (Sweet Grass) Hills are depicted in the background. Original painting by Judith Nichol, Gem of the West Museum, Coaldale.

Figure 16. Bears were revered and highly respected by southern Alberta First Nations people and would have been hunted, but rarely used for food. This is a black bear (Ursus americanus)

Figure 17. Wapiti or elk (Cervus Canadensis). Washington Department of Fish and Wildlife.

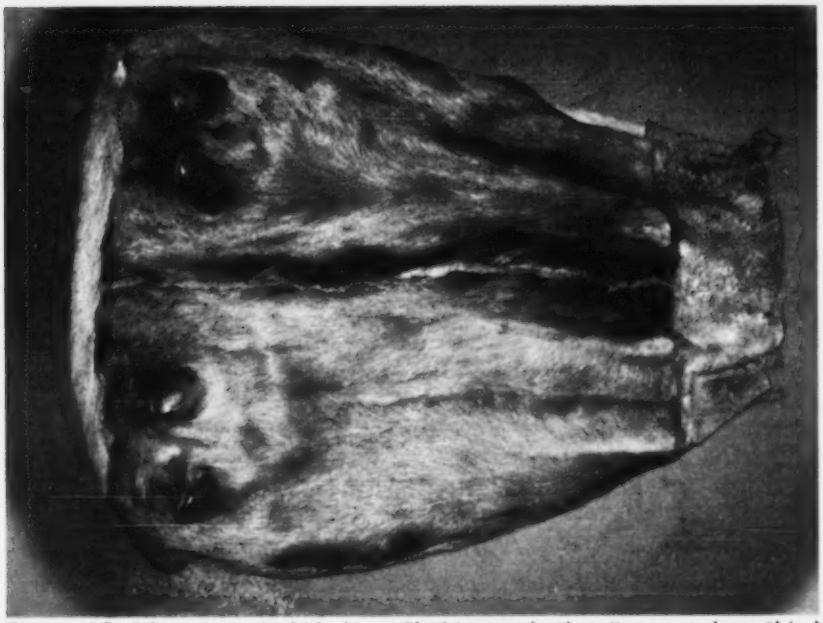


Figure 18. Pikunni wapiti hide bag. Clothing and other items such as this bag were made from durable and relatively light wapiti hide. This bag is from the Gem of the West Museum in Coaldale.

Plant Resources

This section outlines the use and acquisition of plant resources that were important to the First Nations of southern Alberta. The purpose of this section is not to list all the plants used by First Nations, but to illustrate the nature and extent of ecological knowledge necessary to obtain plants and to ensure that the plant resources were sustained.

Southern Alberta and adjacent sections of northern Montana and eastern Saskatchewan are estimated to have had approximately 1000 to 1500 species of naturally occurring (native) plants prior to the arrival of Europeans. Since the advent of modern agriculture, global trade in plants and modern travel, several hundred species have been introduced to this area. Of the native plants, approximately 175 are known to have been used by First Nations in this area (Johnston 1987). Hellson and Gadd's (1974) estimate of plants used is lower at about 100. Current research and direct ethnographic evidence indicates modern First Nations people use approximately 100 different naturally occurring plants. It should not be surprising that given the extent that the landscape has changed in the last century, the availability of biochemical compounds, modern medicine and nutrition, as well as the loss of traditional knowledge that some past uses of plants has been lost. As is the case with modern cultures, traditional cultures used plants for food, medicine, ritual, decoration and other uses.

Food Plants

The following list of plants gives the common name most often used in southern Alberta. The Saskatoon for example, is known variously as the serviceberry, juneberry, mayberry and in some historical literature as the sarvis berry. Many traditional food plants had other uses as medicines and ceremonies. The following lists of plants provide only a sample of the plants and plant uses from southern Alberta. Hellson and Gadd (1974) and Johnston (1987) provide more comprehensive lists of traditional plant use in southern Alberta. Historical and first person accounts such as McClintock (1999), Ross (2008) and Mountain Horse (1979) also provide important information on traditional diets, plant use and ecological knowledge.

Plants used for food and other purposes by southern Alberta First Nations were also traded. There is substantial archaeological and other evidence for trade and trade routes throughout North America prior to the arrival of Europeans. The nature and extent of trade between southern Alberta and other areas is still poorly known, but it is clear that trade occurred. This means, among other things, that the people of southern Alberta were able to harvest not only sufficient plant resources to subsist on, they were also able to obtain surpluses that could be traded for goods that were not readily available here. There is a tendency to regard non-agrarian peoples as non-participants in economic trading, because of the belief that a non-agrarian culture did not produce surplus goods; however, this is clearly not the case for this region. Alexander Henry in Coues (1987) and Peter Fidler in Johnson (1967) both note that the Blackfoot people traded meat and plant foods (among other things) for European goods. Trade in these goods did not

originate with the arrival of Europeans. Trade was well established among First Nations before Europeans arrived on the scene and the earliest trade materials offered by the Blackfoot and others to Europeans would have been the same goods they traditionally traded with other indigenous groups.

Prairie turnip (*Psoralea esculenta*)
Prairie turnip may have been the most important premodern era food plant of the First Nations of southern Alberta. The plant, *Ma's* in Blackfoot, has an edible root and was eaten raw, roasted or preserved via drying for use in the winter. It could also be ground into flour. It is high in protein, fat, sugar and fibre. It has a number of other micronutrients such as vitamin C, A and several important dietary minerals. It is native to the area and grows best in light sandy soils. The plant was harvested when it flowered in early summer and matures earlier in southeastern Alberta than in southwestern Alberta. Prairie turnip is sometimes misidentified in the literature as *Lithospermum linearifolium.* One or perhaps two species of this latter plant were used by southern Alberta First Nations, but it was not an important food plant.

Fig. 19. Prairie turnip in bloom

The prairie turnip is an important enough plant among the Blackfoot to have myths and stories associated with it and the plant has a role in the Sun Dance ceremony (Cowen 1991).

As a plant food staple, it would have been widely collected. There have been claims that it was cultivated by the Blackfoot; however, we did not discover any direct evidence or accounts of cultivation by the Blackfoot. It may have been subject to some management or husbandry, such as the purposeful pulling/removal of competitor plants.

Although it is a perennial, the entire plant is dug up in the harvesting. As noted, this plant may have been managed by eliminating competitors and perhaps First Nations spread seeds or transplanted plants, but there is no direct evidence that it could have been a domesticated plant. Harvesting the plant apparently started when it was in bloom and before plant seeds were distributed. This meant the entire crop in an area could not be taken so that some plants would remain to reseed the area. People collecting the plant would have had to have been careful to ensure the remaining plants were capable of maintaining a viable population in an area. It is therefore likely that only a certain percentage of the available plants were harvested. Blackfoot informants indicated to us that only 1/4 to 1/3 of the plants in a given location would have been harvested in a single year, thereby ensuring that a good supply of plants would be available for the following year. The plants prefer loose sandy soils and these soils would have been most vulnerable to frequent prairie droughts; therefore, harvesting would have been mediated by knowledge of climate and weather conditions. As is widely known, a seasonal drought in one part of southern Alberta might be balanced by more than sufficient moisture in other parts and people would have to know where plants were most in jeopardy and where they were most abundant. Soil moisture conditions would probably have aided in determining the amount of plants that could be taken in a given year. While additional knowledge would be required, ensuring the sustainability of this plant over the long term would require knowledge of:

- the distribution, location and density of plants
- the time of year the plant flowered, matured and set seeds (which would have varied from place to place in southern Alberta) and the related knowledge of how the plant responded to harvesting operations in a given area.
- the productivity of any place the plants grew, for example, how often that area was affected by drought and the effects of drought on plant reproduction and productivity
- how the plant competed with other plants in the area and what its primary competitors were.
- local conditions where the plant grew, such as soil moisture and precipitation patterns in that area.
- what other animals exploited the plant and how that affected its ability to reproduce and survive.

Although the plant is widely distributed in southern Alberta, two places are still widely known as traditional prairie turnip gathering areas: Wild Turnip Hill on the modern Blood Reserve and an area near Cowley known as "place of many turnips" (English translation of the Blackfoot name of the area).

Figure 20. A Piikani digging stick, used for harvesting the prairie turnip. Original photo from the Glenbow Archives, Calgary. Also published in Hellson and Gadd (1974).

Saskatoon (*Amelanchier alnifolia*)

The Saskatoon berry is the mostly widely known food plant native to southern Alberta and it was an important plant to First Nations. The fact that this plant is part of modern diets and is now a cultivated crop has aided the maintenance of its place in Blackfoot culture. It is the most widely consumed traditional First Nations food in the modern era from this region. The plant has probably figured prominently in traditional culture for thousands of years; however, with the development of pemmican, estimated to have been ca. 4800 years ago, it undoubtedly became more important. Saskatoons are an important component of pemmican, the dried meat, fat and berry food common among northern Plains people.

Saskatoon plants are widespread and grow throughout southern Alberta on moist slopes on the open prairies, foothills and in river and stream valleys and throughout the province.

Figure 21. Saskatoon plants with ripe berries. Plants shown here are in the foothills, but they grow widely in southern Alberta.

Saskatoon plants were not subject to the same constraints as the prairie turnip. The plant is perennial and only the berries are harvested for food (although other parts of the plant such as the branches were used for other purposes). Effective use of the plant nevertheless required significant traditional knowledge. The berry production of plants is highly variable from year to year and knowing the plant's health and productivity was critical to the people who used its fruit. It is important to remember that saskatoons were more critical in past diets than they are in modern ones. It was an important food plant and while a poor saskatoon harvest may not have meant the difference between life and death in the past, it was an important nutritional component of past diets both in terms of calories and micronutrients. The plant's fruits are prone to certain blights when they grow close to certain other plants and there may have been some management of saskatoon plants by removing nearby competing plants to allow the plant to make better use of available sun and moisture and to remove plants that contributed to blight on the berries. Among the knowledge required for effective use of these plants is

- knowledge of the conditions in the habitat in which the plants are found
- climate conditions such as late frosts which may result in the lack of development of fruit
- local drought conditions
- knowledge of competing plants
- knowledge of fruit maturity which occurs at different times throughout the region.

- knowledge of competitors of humans for the fruit. Bears, for example, consume large quantities of berries and humans would need to be aware of where competitors for the berries were common.

Figure 22. Traditional method of sun drying saskatoons. This photo was taken ca. 1920 of a Tsuu T'tina woman. Glenbow Archives, Calgary photo. Image also published in Johnston 1987.

Choke-cherry (*Prunus virginiana*)

Choke-cherry plants occupy similar habitats as the saskatoon and were used in a similar manner. In traditional practice, then as now, saskatoon berries had preference over choke-cherries due to their taste and the fact that they do not have a hard pit as do choke-cherries. Saskatoons were in fact called the "real berries" in Blackfoot. Choke-cherries were however an important food and contributed both calories and micronutrients to traditional diets. Exploitation and sustainability of choke-cherry plants required the same considerations as saskatoons. They were commonly used as a component of pemmican.

Figure 23. Choke-cherry

Following is a partial list of other important food plants to First Nations of southern Alberta. This list is mostly restricted to food plants that had a significant caloric component in a traditional plant, as opposed to plants that were used for tea, flavouring/spice. In addition to the food plants contained in this list and plants used as flavourings and other minor nutritional purposes, there are many food plants known to the Blackfoot that were considered famine foods, that is, they were consumed when other food was in short supply.

Canada milk-vetch (*Astragalus canadensis)*
The root of this plant was eaten raw or cooked with other foods. it is found in sandy and gravelly soils on the grasslands of southern Alberta. Some accounts suggest the milk-vetch that was consumed was Indian milk-vetch (*Astralagus aboriginum).* Other accounts (e.g. Johnston 1987) indicate both species were consumed. Some varieties of milk-vetch are poisonous and can cause health problems due to their tendency to accumulate high concentrations of selenium and molybdenum (Johnson *et al.* 1995). Knowledge of the potential deleterious effects of this plant would have been

necessary. The plant is widely distributed but would have been subject to similar management considerations as the prairie turnip.

Arrowleaf balsamroot (*Balsamorhiza sagittata*)
Both the roots and seeds are edible. These plants are common in southwestern Alberta and would probably have been harvested later in summer. This plant occurs more commonly in the western part of the area than the east.

Figure 24. Crushing choke-cherries in the traditional manner. This photo was taken ca. 1920 of a Tsuu T'tina woman. Glenbow Archives, Calgary photo. Image also published in Johnston 1987.

Figure 25. Arrowleaf balsamroot. G. Monroe, USDA (2009).

Figure 26. Canada milk-vetch, J. F. Duft USDA (2009)

Cow parsnip (*Heracleum lanatum)*
A tall plant belonging to the carrot family and common in forested environments southwest Alberta. The stem and root were consumed. Stems would sometimes be cut into small pieces, dipped in blood and stored for use in soups and broths (Hellson and Gadd, 1974). This plant would have been collected probably at the same time as poles for lodges were being cut.

Buffaloberry (*Shepherdia canadensis*)
Buffaloberry, a woody shrub, is widespread in forested environments in southwest Alberta and like many other plants of southwestern Alberta, it is also found in the Cypress Hills. It is sometimes considered a famine food, but the berries are high in vitamin C and iron and were often mixed with other berries. The berries would have been an important dietary supplement and may have been consumed to ensure adequate intake especially of vitamin C.

Figure 27. Cow parsnip, G. A. Monroe, USDA (2009)

Figure 28. Buffalo berry.

Double root, Indian turnip (not prairie turnip) (*Perideridia gairdneri*)
Indian turnip grows in meadows and brushy areas throughout southern Alberta and was widely used here. Indian turnip is a member of the carrot family whereas prairie turnip is a member of the pea family (Wilkinson 1999); however, both have nutritious roots. Indian turnip is rich in sugar, Vitamins A and C and potassium and is said to have a sweet flavour (Wilkinson 1999). The roots were consumed raw or boiled and were used as a constituent in soups. Management and knowledge of this root would have been similar to the prairie turnip.

Figure 29. Double root, Indian turnip, Yampa

Medicinal and Ceremonial Plants
Many plants were used for food, for medicine and for ceremonial purposes. The prairie turnip, for example, played a role in the annual Sun Dance. Other plants served specialized non-nutritional roles in traditional culture and two of the most important were and continue to be sweetgrass (*Heirchloe odorata*) and tobacco (native species used were either or both *Nicotiana*

attenuata and *Nicotiana mulivalvis*). These plants were, arguably, as or more important to the culture than many of the traditional food plants. This section discusses some of the more common non-nutritional plants used by First Nations in southern Alberta, but again the list is by no means exhaustive and the reader is referred to other sources as noted in the plant foods section above.

Sweetgrass (*Heirchloe odorata*)
Sweetgrass held and continues to hold a central place in traditional beliefs and practices. Sweetgrass is used as an incense in ceremonial and religious activities. As Hellson and Gadd (1974, 9) note, "virtually every holy artifact was incensed with sweetgrass". The grass was collected, dried and braided into strands and sections were broken off and burned. The fragrance is sweet and pleasant. Sweetgrass was also used as perfume and sometimes mixed with tobacco for ceremonial purposes. Hellson and Gadd (1974) indicate that tea made from sweetgrass was consumed to treat infections.

Sweetgrass grows widely in moist areas along lakes, sloughs and ponds and beside streams in southern Alberta. It is probably common enough and not intensively exploited enough to require special management by traditional users.

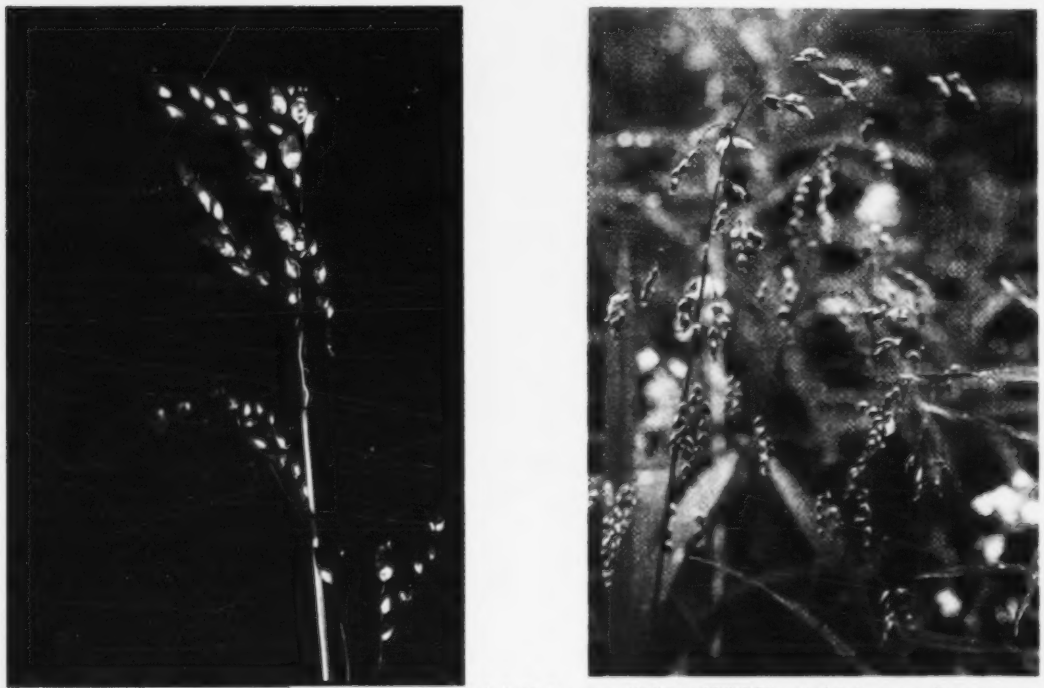


Figure 30. Sweetgrass (*Hierchloe odorata*) left image USDA (2009), right image from Johnson *et al.* (1995).

Figure 31. Sweetgrass braids.

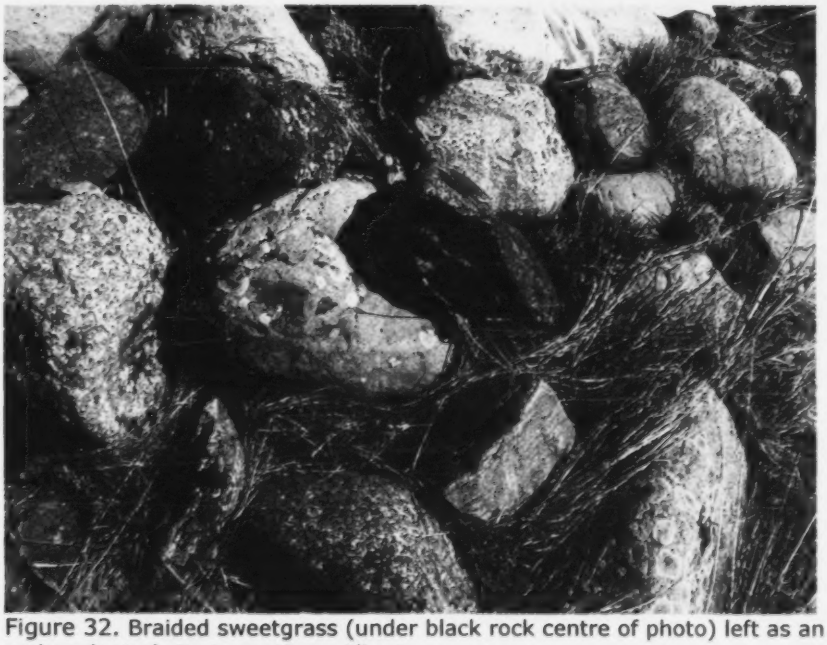


Figure 32. Braided sweetgrass (under black rock centre of photo) left as an offering at an archaeological site in southern Alberta.

Tobacco (*Nicotiana attentuata, Nicotiana multivalvis*)
Tobacco was and continues to be the most important traditional ceremonial plant to the Blackfoot and other indigenous cultures of southern Alberta and appears to be the only plant that was cultivated. The reason for cultivating the plant was that southern Alberta is out if its natural range. The traditional

use of tobacco is complex and we discuss its use and importance only briefly here. How far back in the history of the First Nations tobacco use goes is unknown for certain; however, Yellowhorn (2003) estimates that tobacco became common on northern Plains ca. A. D. 1200. Cultivation of tobacco by the Blackfoot largely ended when varieties from eastern and southeastern North America became more available; however, the specialized growing of a western variety of the plant continued on the Siksika Nation until the latter part of the 20th century. Two varieties may have been grown here, *N. attentuata* and *N. multivalvis*. According to the anthropologist, R. H. Lowie (cited in Setchell, 1921) and Duke (1991), Blackfoot people grew *N. attenuata*, however according to Hellson and Gadd (1974) the variety traditionally most common was *N. Multivalvis*.

Neither variety was easy to grow in southern Alberta, as the plant was susceptible to frost and drought. As a result, indigenous people were very careful about where the plant was placed and perhaps as a result of its sensitivity, considerable ritual and ceremony accompanied its planting and growing. Plains cultures could not stay in one place to take care of tobacco crops and special measures were necessary to ensure a successful crop. As Yellowhorn (2003, 333) notes,

> [Actions], in this case cultivating tobacco, are physical activities that require human labour. The myth [of the origin of tobacco] and ceremonies help to make sense of this investment by surrounding the practice with a spiritual purpose.

The origin myth is not repeated here; however, an important point is that it was a beaver that provided the first tobacco seeds to the people. The beaver holds a special place in Blackfoot mythology, but the beaver and tobacco growing on the northern Plains are tied together in a more prosaic way. The beaver bundle holders were influential leaders and it was the bundle holders that were considered skilled in weather forecasting. The bundle holder maintained track of the calendar, based on the lunar cycle (Yellowhorn, 2003). The bundle holders determined the timing of the planting of the crop, based on local climate conditions and the timing of the first new moon after the vernal equinox, sometime in April. At this time, planting preparations would begin.

The location of the crop was important on the Plains due to the prevailing climate that was both drier and cooler most tobacco plants can tolerate. The location of tobacco gardens had to be less prone to spring frosts and wetter than typical prairie upland. Areas were carefully chosen based on proximity to water and in areas with some protection from frost. Most often areas chosen were flood plains and lower terraces of small streams. These lower areas had more available soil moisture. Lower areas can suffer frost more frequently than higher areas due to the movement downslope of cold air i.e. "cold air drainage"; however, cold air drainage is often overcome in low areas by release of heat from open water during cool nights. The ideal location of the tobacco garden therefore required a detailed knowledge of soil and soil moisture conditions, the extent of open water and erosional processes of nearby streams and local topography and dominant wind

patterns that can effect and help mitigate microclimatic conditions in small areas.

Given the fact that tobacco requires a generally longer growing season than most of the northern Plains has, it was critical to plant crops as soon as possible in the spring. The beaver became active after the frost was out of the ground and planting could be started when the beaver were observed to be moving around. Small streams and areas used by beavers were generally considered the best planting areas. Tobacco prefers moist but loose soils and areas along small streams that are prone to flooding provide this setting. Southern Alberta traditional tobacco growers were also familiar with the positive affects of ash as a fertilizer and to increase the friability of soil and the use of animal dung as fertilizer. Tobacco growing areas were often burnt off prior to planting to provide ash (wood was often added to the fire to increase the ash component) and to eliminate competitor plants and, according to Yellowhorn (2003) a mixture of elk and bison manure was added to increase the soil's fertility. Once the crop was planted, the planters left the area and crop on its own until it was ready to harvest. As a mobile culture, there was no possibility of ensuring the crop's success by continually monitoring it, weeding, keeping animals out and other activities commonly practiced by sedentary agrarian cultures, therefore it was even more important that southern Alberta First Nations had and used their in depth knowledge of local ecology to attempt to ensure a successful crop. The Beaver aided the crop by partially determining the timing of the seeding and by aiding flooding which provided moisture to the garden plot.

Tobacco was used during ceremonial and other formalized settings, According to Yellowhorn (2003), prior to the adoption of tobacco growing, Blackfoot and probably other northern Plains groups used smoking ceremonies using other native plants, but tobacco was incorporated into the ceremonies when it arrived here.

The process and practice of traditional tobacco growing and use by the people of southern Alberta is considerably more complex than related here and interested readers are directed to Yellowhorn's (2003) brief but thorough account of tobacco growing and use and Wissler's (1912) account of the practice.

Tobacco was the only non native plant considered important by traditional cultures in this area and probably the only one that was actively cultivated; however, native plants that were important for diet, medicine and other purposes would have been managed with similar ecological knowledge.

Yarrow (*Achillea millefolium*)
This plant grows widely in southern Alberta grasslands and wooded environments. It had multiple uses as a medicinal plant. Crushed leaves were used as a bandage for open wounds. Europeans called it "soldier's wound wort" and used it for the same purpose. The Blackfoot made a tea from the entire plant and the tea was used for stomach problems or to treat headaches. A rub from an infusion made with the plant was used to treat

sore eyes in both humans and horses. The plant has a number of other medicinal uses. As it grows throughout southern Alberta, no special management tasks are associated with it and it was collected and used as needed, including presumably collecting and storing the plant for use during winter.

Scarlett mallow (*Sphaeralcea coccinea*)
Scarlett mallow, like yarrow, occurs widely in southern Alberta, mostly on xeric grasslands, and was not subject to any special management consideration. As with Yarrow, it would have been collected and used as needed. The plant was thought to have cooling properties and a paste created from it was used to treat burns and scalds. The paste may have been used as a protection from scalding during tasks such as cooking.

Figure 33. Scarlett mallow. USDA (2009)

As noted above, there is a large number of other plants that were used in ceremonies and as medicinal treatments. Using first person accounts, Hellson and Gadd (1974) list a large number of plants by use. The Blackfoot and other indigenous people of southern Alberta separate plants by the tasks for which they were used. For example, a range of plants were used for gastrointestinal disorders, for respiratory disorders, for skin disorders, wounds, sprains, breaks and burns, as antibiotics and the treatment of infections for eye, ear and throat disorders and for other types of ailments. Plants, as is the case with tobacco, also served important ceremonial purposes and had a wide range of other uses in tool production and use, as perfumes and fumigants, and as decorative items to name a few. Whatever else can inferred from the extensive use of native plants, it is clear that traditional users understood and had extensive knowledge of native flora of the region and had an in depth knowledge and understanding of the value of native plant resources.

Figure 34. Yarrow is the plant with the small white flowers. J. S. Peterson, USDA (2009)

Among the critical ecological knowledge necessary for efficient exploitation of floral resources, knowledge of water resources, flooding and low water timing of rivers, streams and other water resources are paramount.

Water is critical to survival for humans, other animals and plants and humans would have to be able to predict resource availability partly on the basis of water supply. Dry years means low water will occur earlier in the year and therefore the seasonal round will have be adjusted accordingly. An advantage of mobile cultures is the ability to move and adjust with shifting resource availability. A disadvantage is that there is rarely a significant ready supply of resources available if there are critical environmental problems (such as catastrophic drought). This means among other things, that cultures have to be able to know in advance if such problems are cropping up and take measures to counter them, by altering locations to acquire resources. This means that one not only needs to know the location, density, migration and maturity patterns of plants and animals on one's normal seasonal round, the group has to know those patterns for a much larger area. This knowledge must be held communally and is necessary for long term survival.

The ecological knowledge includes having both long (decadal and longer) views of resource patterns and availability, including climate and detailed (short term annual or less) views of plant patterns of growth, animal migration patterns.

This ranges from knowing the consequences of a long winter or late arriving spring on animal populations to the longer term consequences of a severe drought. For example, bad weather during calving might have severe consequences for a local or regional bison population not that year, but over several years. If that occurred, hunting patterns might have to be altered, for example, to concentrate on taking only males rather than reproductively more important females. A severe winter or some other serious environmental problem might mean foregoing a mass bison hunt where the most animals possible are taken regardless of the sex or age of those animals in favour of smaller hunts and concentrating on taking males. This would have major impacts on where a group had to be at a given time. It could conceivably mean the major summer cultural groupings would have to be given up to allow smaller groups to spend more time hunting animals more selectively.

Similarly and although bison were the most important source of food energy, environmental issues and problems that impacted important food and medicinal plants would have to be similarly mitigated through planning and alteration of the normal patterns. There have been some minority views that mobile cultures with restricted material culture wants and needs more or less randomly wandered around the landscape eating what they came across. This could not be further from the truth. Survival in the highly seasonal environment of southern Alberta meant detailed plans and detailed environmental ecological knowledge were absolutely necessary. Further, the seasonal round was highly organized and planned and based on both long and short term knowledge. Not having this knowledge would have meant that survival was tenuous. Having the knowledge meant not only that cultures could survive, that they could thrive over thousands of years.

As another example, movement on a seasonal round requires knowledge of things like high and low water patterns. This is important not only for predicting where animals will be and when and which plants will be available and which will not, but it also is required to know paths and routes. Knowing how rivers change course in their valleys creating and destroying easy crossings requires knowledge of how rivers behave. Winters were traditionally spent in river bottoms which of course are prone to flooding. Knowing where to establish wintering sites to avoid flooding and knowing when to abandon the winter village to avoid catastrophic losses due to flooding were critical knowledge components.

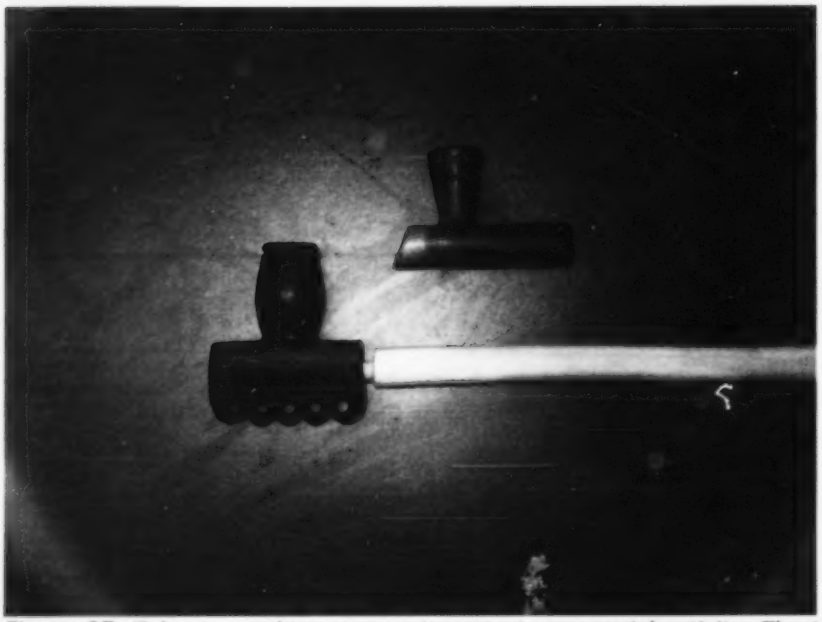


Figure 35. Tobacco smoking was an important ceremonial activity. The two pipe bowls above are carved from stone. The black one was obtained from T'suu Tina chief and the origin of the red one is unknown. The pipestem on n the black bowl is a reproduction. Both pipes from Gem of the West Museum in Coaldale.

Biogeographical knowledge, that is, knowing the patterns, distribution, migration and densities of resources and other plants and animals was critical, but so was more physical geography. Knowledge of flooding and water cycles has already been noted. Other important elements were a general knowledge of landscape, distances and travel routes.

Figure 36. *Nicotiana attenuata*. Tobacco was not indigenous to this area, and was cultivated. Some authors indicated that the species that was cultivated was Nicotiana multivalvis (Hellson and Gadd 1974) but this is unclear. Photo by G. Monroe, USDA 2009.

Figure 37. Pikunni ceremonial rattle. The rattle has been coated in red ochre, a traditional and ceremonially important substance and the rattles inside may be dried kinnickinnick (*Arctostaphylos uva-ursi*) berries. Dried berries were considered more desirable for rattles than pebbles because they were lighter and didn't make dust. Kinnickinnick berries were also eaten and leaves of this plant were used to mix with tobacco for smoking or to make tea (Hellson and Gadd 1974). This rattle is from the Gem of the West Museum in Coaldale.

CULTURAL VALUES OF LANDS AND RESOURCES

Culture values for lands and resources are difficult to define in concrete, objective terms. Attitudes among individuals and groups vary and there is no reason to believe traditional values of the indigenous population of southern Alberta are monolithic. It is, however, possible to generally recognize and differentiate lands and resources based on their traditional economic and/or spiritual value within the South Saskatchewan River Basin. As is the case with other sections, a comprehensive list of those areas considered to have significant traditional value is beyond the scope of this report given the large area involved and the number and extent of lands and resources that are considered to be traditionally important. The following are examples of important features within the basin and a summary of the reasons for their high cultural value(s). These are presented in no particular order, but generally they are seen as historically and traditionally important and they provide general information on the types of geographical resources and elements that have traditional importance. Many of the locations and features listed herein have elaborate and detailed histories and myths associated with them. Again, we cannot present these histories herein, but we have attempted in our references and further reading sections at the end of this report to identify sources that provide this information in greater detail.

Most First Nations and especially Elders and other experts in traditional knowledge would identify some of the following areas as more significant or historically important than others. Inferring relative values of the following is not considered relevant to this report. The following discussion of cultural values attempts to be objective and to not judge the relative importance of traditional places. Some areas or features on the list cannot be directly compared to other areas, making rankings irrelevant in any case. Again the following attempts to illustrate traditional knowledge and traditional uses in southern Alberta by referring to some areas and features that are known to have played important parts in the history and cultural values of southern Alberta's First Nations.

Sites and Site Areas with Significant Traditional Economic Value

This section discusses some areas in the South Saskatchewan River basin known to have played an important role in traditional economic practices. Clearly there would have been many more sites recognized as important in the pre-modern era. There are also many sites and areas that were used by people living mostly in the South Saskatchewan River basis but which are outside the boundaries of the current study area. It should also be noted as is the case with other elements of culture and other cultures that there is no definite division between sites and areas with economic importance and sites and areas with spiritual or ceremonial importance. Most often there is overlap between the two. The division we use is arbitrary; however, for those sites listed under the "economic" label and those listed under the "spiritual/ceremonial" label, the site is classed according to our view of its dominant use and role in traditional First Nations culture.

Similarly it must be emphasized that "economic value" herein is defined broadly. That is, given the nature of the indigenous economy, one based on the acquisition of naturally occurring and often mobile culture resources, economic sites can be areas where groups had to be during a given time of year. For example, important and large winter camp sites here are included under the "economic" category because the establishment of winter camps where there were resources central to cultural survival and health such as wood for fuel are as much part of the general economic system as are major bison hunting sites. Another consideration in examination of this list is the fact that the sites constitute archaeologically or historically known site areas. It is possible, indeed likely, that significant site areas exist in southern Alberta that have not yet been formally recorded and that have been lost from historical accounts and so clearly such sites are not included herein.

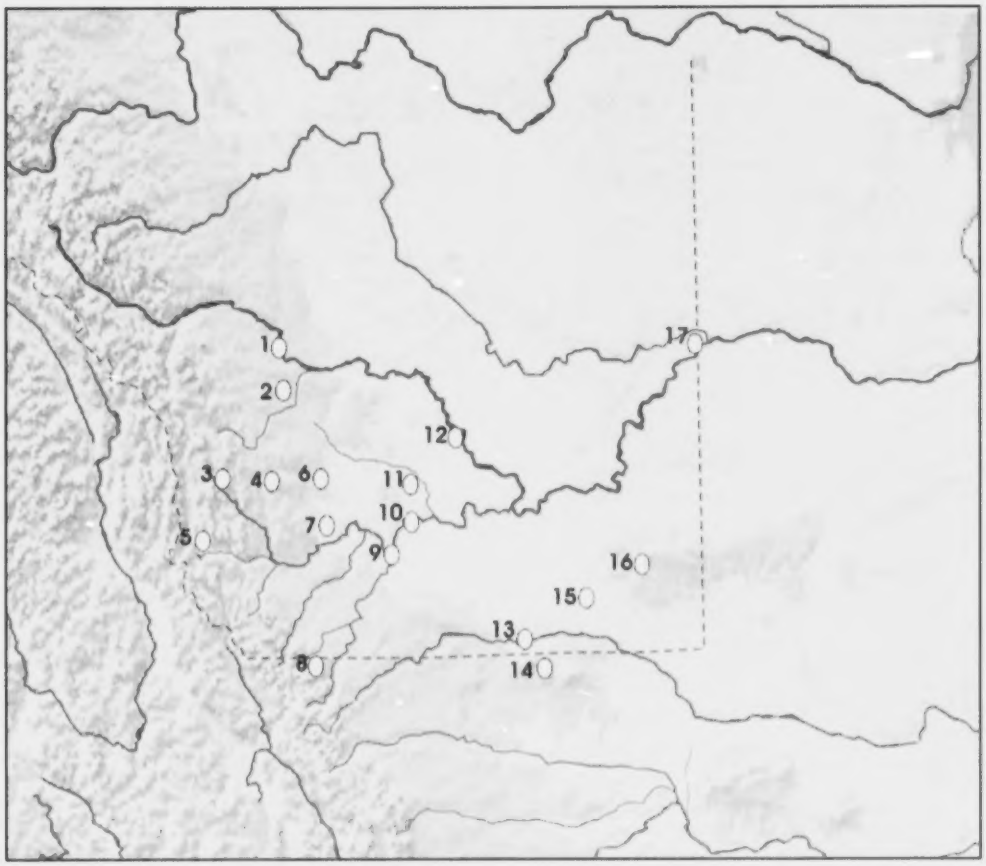


Figure 38. This map illustrates the general location of major sites discussed in the report. Note that some symbols cover only a portion of the area mentioned such as the Porcupine Hills, while symbols for small sites such as the Ross Site cover a much larger area than the actual site. 1) Bow River-Fish Creek valley, 2) Okotoks Big Rock, 3) Livingstone Range, 4) Porcupine Hills, 5) Crowsnest Mountain, 6) Women's Buffalo Jump, 7) Head Smash In Buffalo Jump, 8) Chief Mountain, 9) St. Mary-Oldman River valley, 10) Ross Site, 11) Sun Dial Butte Medicine Wheel, 12) Majorville Medicine Wheel, 13) Writing On Stone, 14) Sweet Pine (Sweetgrass Hills), 15) Manyberries-Pakowki Lake, 16) Cypress Hills upland, 17) Red Deer-South Saskatchewan confluence area.

The lists attempt to provide a cross section of site sizes, types and areas again to demonstrate the extent and intensity of traditional knowledge and traditional land use in southern Alberta. The economic sites listed herein are weighted toward more recent sites and areas (sites centuries old rather than thousands of years old); however, there is no doubt that some sites and areas such as the Cypress Hills Uplands have been important throughout the period of the human history of the Plains. It is also possible that some of the recent sites may have older material and more deeply buried components that have not yet been discovered. It is also the case that older sites are more likely to have been destroyed by natural erosional and depositional processes than more recent ones.

The term "site complex" is used in conjunction with some of the following sites listed below. The term simply means that there are a number of archaeologically or historically defined sites in a relatively small area. An archaeological or historical site could, for example, be a bison kill site area and an adjacent habitation site would be defined and delineated differently. The term site complex is the agglomeration of separately defined sites in the named area.

Cypress Hills Upland

The Cypress Hills were important to the economic system for a number of reasons. They provided a number of resources not common elsewhere on the open grasslands. The most well known and discussed use is the lodge pole pine (*Pinus contorta*), so named for obvious reasons, that grew there and was exploited annually by southern Alberta First Nations to obtain the critical material for their lodges, travois and other wooden structures ranging from back rests to meat drying racks. In addition, the hills were home to several animal and plant resources, such as bear, lynx, kinnickinnick, juniper and other species that were uncommon on the open plants. The hills were sheltered and enjoy a moister cooler climate than the surrounding xeric grasslands and therefore would have been a refugium during times of drought and other climatic or environmental difficulties on the open plains (Bonnichson and Baldwin 1978). The Cypress Hills also had spiritual importance and there is at least one account of regular Sun Dance ceremonies in the Hills (Schultz 1962).

Figure 39. View southeast from the northwest side of Elkwater Lake in Cypress Hills Interprovincial Park. The forested upland provided resources not commonly found on the plains.

Head-Smashed-In/Women's Buffalo Jump Site Complexes
Head-Smashed-In and Women's Buffalo Jumps are north of the Oldman River between Fort MacLeod and Stavely. Women's Buffalo Jump is more commonly known as Old Women's Buffalo Jump. Blackfoot people tend to not use the word "Old" in the name. Although two separate sites, both are prime examples of places used repeatedly as communal bison hunting sites. Both sites have records of use that go back centuries. Head-Smashed-In appears to have been used more often and over a longer period of time, but both sites are important because the primary element of the traditional economy was acquired there. Both sites and the practice of mass bison hunts are well known, but these and other mass bison kills have central importance in the region's traditional economy. Both sites have spiritual importance and of course that importance is related to bison as a staple of the culture. A number of other mass bison kill sites are known in southern Alberta; however, Head-Smashed-In and Women's Buffalo Jump are iconic.

Porcupine Hills
This large area of rolling foothills terrain between the Livingstone Range on the west and the open prairie on the east are analogous to the Cypress Hills in terms of resources and economic function. The primary resources available were wood, plants and animals not common on the open grasslands and like the Cypress Hills, the Porcupines were a refugium in times of environmental stress such as drought on the grasslands.

Manyberries/Pakowki Lake
The Manyberries/Pakowki Lake areas warrant mention because these areas figure prominently in the seasonal round. It is worth noting that this area may be seen as more important simply because it is known as an early stop in the seasonal round based on widely cited Uhlenbeck's (1911) account of the seasonal round; however, it is also important because the area has extensive tracts of relatively undisturbed native grassland. That is, much of the South Saskatchewan River basin has been extensively impacted by cultivation and other forms of modern economic development, but the Manyberries/Pakowki region has been comparatively lightly impacted. It still possesses many of the ecological and environmental attributes that made it an important traditional economic area and therefore warrants noting in this context.

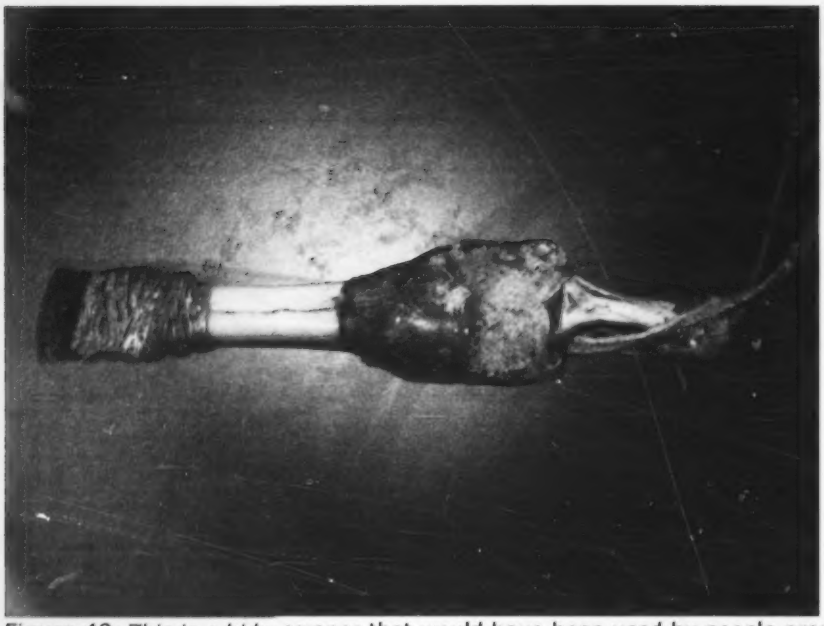


Figure 40. This is a hide scraper that would have been used by people preparing hides at the Ross Site as depicted in Figure xx below. This scraper is known to be from a more recent period because it has a metal blade, but it is otherwise similar to ones used at the Ross and other sites where hide working was carried out. This tool is from the Gem of the West Museum in Coaldale.

Ross Site Area Complex

This is an example of a smaller site that is considered economically important. The site complex includes a multiple use site within the Oldman River valley between Lethbridge and Taber and a repeated use bison kill area. The site is considered important to the traditional economy because it was occupied multiple times and was an important wintering site, on the basis of archaeological evidence discovered by Forbis (1960) and Vickers (1991). The presence of large camps in this sheltered, well wooded section of the Oldman River also fits closely with the description of the seasonal round from several sources and the idea that winter camps were set up where there was adequate fuel and other resources over the long cold period. The Ross site may have been more important because of the nearby bison kill site area.

Figure 41. This painting depicts normal daily life at the Ross Site in the Oldman River valley near Coaldale when the site was occupied several centuries ago. The people in the background are preparing hides for clothing and shelter. The person in the foreground is making tools. Although the Ross Site is a known winter camp, it was also occupied at other times of the year, including the spring and summer. Ross may have been occupied periodically during all the seasons due to ready availability of plants and water and the fact that there is a spring nearby that attracted game including bison. Original painting by Judith Nichol, Gem of the West Museum, Coaldale.

Figure 42. View northeast towards the Ross Site (in trees, past the curve in the Oldman River) as it looks today. Artifacts were removed from far bank of the Oldman River just below the trees. This large flat would have been an ideal location for both winter and warm season use. A small bison kill is located near the point from which this photo was taken.

St. Mary-Oldman River Confluence Site Complex

This site complex is, in some ways, similar to the Ross Site; however, it is larger, but the archaeological record of this area is sparser. The area is well known historically because it is the general location of the original Fort Whoop Up, the infamous whiskey trading post, established by American traders in January of 1870 (Dempsey 2002). The location was chosen by the Americans because it was an important wintering site of the Bloods. One of the original builders of Fort Whoop Up, Alfred Hamilton, wrote about the location at the confluence of these two rivers: "Here we are in winter quarters.....The chances are that will make a good trade as there are plenty of Indians around us and buffalo in site every day" (quote taken from Dempsey 2002, 47). Taken at face value, it can be inferred that the area was an important wintering area. The confluence of the St. Mary and Oldman has also been identified by Elder Andy Blackwater as an important wintering area for the Bloods. This area, like the Ross Site, offered fuel for winter and clearly bison could be acquired during the winter. The Lethbridge area receives relatively little snow in winter compared to many other areas of Alberta and the South Saskatchewan River basin and has frequent chinooks that make the ground suitable for grazing in the dead of winter. Use of the area as a traditional wintering ground would have made sense. In addition, areas near the confluence of major drainages are considered important in traditional land use.

Figure 43. The river valley near the confluence of the St. Mary and Oldman Rivers. This area, the site of the original Fort Whoop Up, was a favoured wintering area of the Bloods. This view is looking east from Blood Reserve lands. The mouth of the St. Mary River is at the top of this photo.

Bow River-Fish Creek Site Complex

This area is listed here due to its high concentration of relatively recent sites. There are a number of small bison kills in the area, and a relatively large number of habitation sites. There is no doubt that this site is relatively well known due to its recent (19th century) use by First Nations and the fact that it is near and within the City of Calgary. As a consequence of the latter circumstance the area has been more intensively archaeologically investigated than most areas within the South Saskatchewan River basin. Notwithstanding this fact, the area provided access to a range of naturally occurring resources including bison and would have been used throughout the year due to the fact that many plant and animal resources were abundant in the valley and surrounding uplands, that it was short distance downstream from good timber for lodges and other uses and it was in the west central region of traditional Blackfoot territory. The T'suu Tina people, relatively recent arrivals in the general area, also used the area commonly since their arrival on the northern Plains.

Majorville Site Complex

This area is discussed in more detail below, but is included in this list because of the site density in the area and its central location in the South Saskatchewan River Basin in southern Alberta. The site area was undoubtedly a gathering place during the seasonal round and is therefore included in this list of economically-important places. The area is centred on the Majorville Medicine Wheel, an important ceremonial site in southern Alberta on the west side of the Bow River south of Siksika reserve lands.

Blackfoot Crossing, the site at which Treaty Seven was signed in September, 1877 is located on Siksika Reserve land a short distance north of the Majorville area.

Sites and Site Areas with Significant Traditional Spiritual and/or Ceremonial Value

As is the case with the preceding section, this section discusses some areas in the South Saskatchewan River basin known to have special spiritual or ceremonial significance to the indigenous cultures of this area. All of the sites listed are well known to First Nations and many are well known more generally for their special nature. This is a partial list of the many highly significant sites in this region and the list is arbitrary, but meant to illustrate the breadth of major site types that are important to traditional knowledge. Many notable spiritual and ceremonial sites known to the First Nations of this area lie outside of our geographical study area.

This list is composed of sites that are well documented and well known and that continue to be central to traditional knowledge and belief systems. Like the short list of economic sites listed above, it is likely that significant site areas exist in southern Alberta that have not yet been formally recorded.

This list concentrates on major locations and while we include some smaller and less well known site areas, we have avoided noting areas such as burial sites and other sites that are considered to be sensitive from a traditional perspective. The reason many of the sites have become noted for their spiritual or ceremonial importance is inherent in their physical qualities. For example, virtually all cultures regard some mountains or physically dominant natural features in their traditional homeland as spiritually important. Mount Fuji in Japan and Mount Ararat in Turkey are noted examples and the indigenous cultures of southern Alberta are no different in this respect.

The list is not arranged in order of importance or other more or less subjective criteria. As is the case with other lists, we need to include the proviso that we do not discuss in any detail the cultural background, mythical or spiritual importance of the site. We attempt to provide sufficient detail so that the spiritual/ceremonial significance of the site is beyond question; however, again, the reader is invited to consult the reference and recommended reading sections at the end of this report for more in-depth information on the sites and the factors and circumstances that gave rise to their importance to First Nations.

Crowsnest Mountain (home of the raven)
Crowsnest Mountain is near the continental divide that defines the western boundary of traditional Blackfoot territory. The mountain is known to be near the headwaters of the river now known as the Oldman. The mountain is geologically unique and semi-isolated from other mountains and so is an important landscape marker and easily recognized.

Figure 44. Crowsnest Mountain

Livingstone Range (the tipi liner)

The Livingstone Range is a nearly uniform east facing slope of the Rocky Mountains and is clear and visible from much of the plains of southwestern Alberta. The top of the Livingstone Range offers a panoramic view of the prairies to the west and may have been a favoured place for seeking visions. In Blackfoot it is known as the tipi liner because it resembles the inner low wall of a tipi. The tipi liner, extending from near the floor of a lodge, was stretched around the interior of the tipi to a height of approximately 1.25 m. The liner was made of bison hide and was often decoratively painted (Kidd 1986).

Figure 45. Livingstone Range, the Tipi Liner.

Figure 46. View southeast from a possible vision quest structure on the eastern slopes in the area of the Livingstone Range. Chief Mountain is visible at horizon in this photo.

The Big Rock at Okotoks and the Foothills Glacial Erratic Train

Like the Livingstone Range and Crowsnest Mountain, the Big Rock at Okotoks and the Foothills Glacial Erratic are quasi-unique landscape features that inspired myth and story and their spiritual importance sprang from those stories. The erratic train, including the Okotoks Big Rock, were moved by

complex glacial processes from Mount Edith Cavell near the headwaters of the Athabasca River in Jasper National Park (Jackson 2008) and deposited on the open plains east of the Rockies during a Pleistocene glacial advance. The large rocks, of which the Big Rock at Okotoks is the largest run in a north-south line from about just south of the Athabasca River, east of Jasper to just north of the Canada-U. S. border. These large rocks are obvious in their setting. They have a mythical association with Napi and the Napi story is a mythical account of the creation of the erratics train. While the entire train is spiritually important, the Okotoks rock is considered sacred. Okotoks is derived from the Blackfoot word for rock "*okatok*" . Many of the rocks forming the train have been partially painted with red ochre perhaps as Klassen (2003, 180) puts it "...in recognition of rock's spiritual genesis".

Figure 47. Okotoks Big Rock. Alberta Culture and Community Spirit (2009)

Milk River Valley/Writing-On-Stone

This area has both economic and spiritual significance; however, the Writing-On-Stone area is widely known for its spiritual importance to the First Nations of southern Alberta. The area is known for its rock art and has one of the highest concentrations of art found anywhere on the Plains. The general area is unique due to its sandstone cliffs, which provide the canvas for rock art, and its general setting. The setting has been and continues to be awe inspiring and is legitimately termed a "sacred landscape". There were 131 recorded rock art sites in Alberta in 2002 (Klassen 2003) and 80 of these are within and adjacent to Writing-On-Stone Provincial Park.

Its unique geography and rarity undoubtedly contributed to the area's spiritual significance. Klassen (2003, 168-169) states a type of rock art classified by archaeological experts in the field is in the Plains Ceremonial Tradition. A common motif in this tradition is religious iconography and this iconography shows symbols of power obtained by First Nations warriors and religious experts. As Klassen (2003, 181) states:

> The hoodoos at Writing-On-Stone are of special significance. Many isolated outcrops are known as "medicine rocks"- unusually shaped landforms considered by many Plains groups to be animated by spirits. They were living beings- offerings and prayers to the spirit world were always left at medicine rocks when the people passed by them... [and as one Blackfoot person told George Bird Grinnell] "when you look at it [a medicine rock at Writing-On-Stone] it seems more than ever like a person.

In Blackfoot tradition, Writing-On-Stone was home to spirits and people went to the area to commune with these spirits.

Figure 48. Unique sandstone cliffs near Writing-On-Stone. The cave is called Rattlesnake Cave and contains numerous petroglyphs and pictographs.

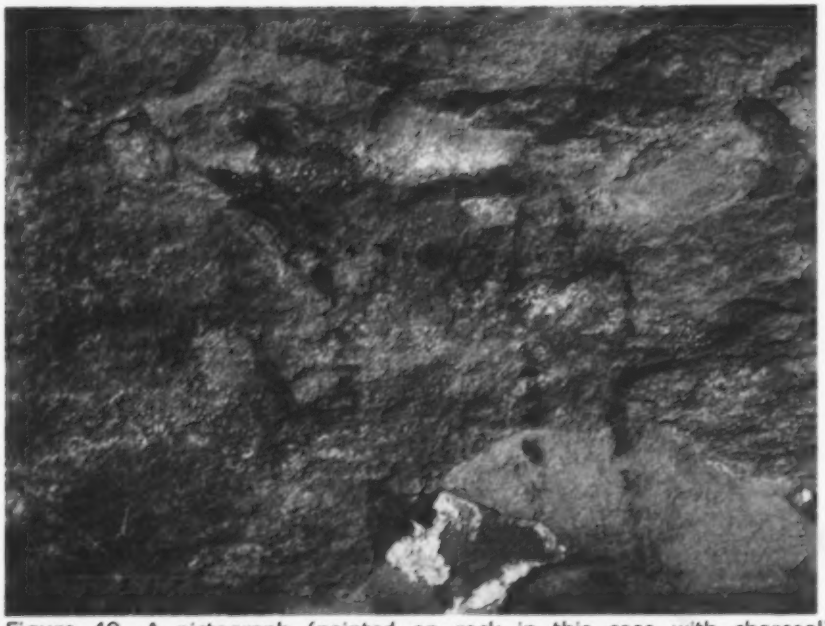


Figure 49. A pictograph (painted on rock in this case with charcoal) from inside Rattlesnake Cave at Writing-On-Stone.

Figure 50. View southwest toward the river valley and hoodoos at Writing On Stone Provincial Park.

Figure 51. Writing-On-Stone area sandstone cliffs. This view is to the north in a tributary coulee of the Milk River valley. Like hoodoos, the cliffeswere unique elements in the landscape, evoked spirits and were the canvas for rock art for indigenous people.

Figure 52. View southwest from the Milk River Ridge toward the Sweet Pine (Sweet Grass) Hills. Both the Milk River Ridge and the Sweet Pine Hills are important ceremonial and economic geographical features to the Blackfoot and other First Nations.

Majorville Medicine Wheel Area

Medicine wheels are a well known archaeological feature of southern Alberta and are most often associated with the Blackfoot. Almost all of the known Medicine Wheels are in traditional Blackfoot territory and the highest concentration of these sites are along the Red Deer River and in the South Saskatchewan Basin. The Majorville Medicine Wheel is a primary example of this important example of traditional use.

The Majorville Site Complex is noted as an important economic site in the preceding list, but there is no doubt the site deserves mention in this list as well. The focal point of the site area is a feature known as the Majorville Medicine Wheel and the site is a large stone cairn surrounded by radiating lines of stone and stone circles. The site is situated at the crest of high hill in rolling prairie upland on the west side of and overlooking the Bow River.

The function and meaning of medicine wheels is still poorly understood in the archaeological literature, although in the traditional view, they are sacred places. It is worth noting that the term medicine wheel is a European one. The first use of the term is attributed to George Bird Grinnell (Moors 2007,36) in attempt to capture the mysterious essence of the Big Horn Medicine Wheel in Wyoming. There have been arguments that they are markers for annual gatherings, that is, they are not actual remnants of the Sun Dance; however, they are related to that ceremonial activity and the gathering of large groups for Sun Dances. It is unlikely that all the features classed as medicine wheels were used for the same purpose (Mirau 1995), even if most of those functions or meanings invoked sacredness. There is evidence for some medicine wheels as burial sites, some as actual remains of Sun Dance structures and a range of other functions have been proposed. The Majorville Medicine Wheel is notable due to its age and it may be as much as 5000 years old (Calder 1977, Moors, 2007). Whatever the roles of the Majorville Medicine Wheel and the surrounding area, it is clear that at least one of those roles was ceremonial and the site continues to be an important sacred site within the South Saskatchewan Basin. It is also worthy of note that it is situated in a landscape that has never been cultivated and the surrounding area has a very high density of archaeological sites.

Sundial Butte Medicine Wheel Site Complex

The Sundial Butte Medicine Wheel is similar in many respects to the Majorville Medicine Wheel and is located about 50 km southwest of the Majorville site. The medicine wheel is situated on highest hill in the local area on the west side and overlooking the Little Bow River.

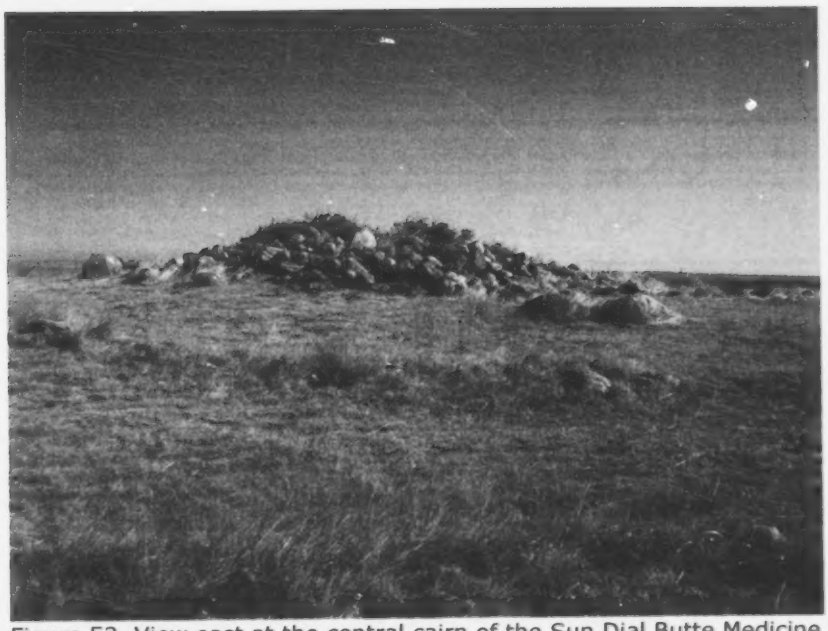


Figure 53. View east at the central cairn of the Sun Dial Butte Medicine Wheel.

Sun Dial Butte is also located in a large area of native grassland and surrounded by a large number of archaeological sites. It has the same sacredness as Majorville. Sun Dial Butte has been less completely investigated, but there is no reason to believe that it is less significant or traditionally important than Majorville.

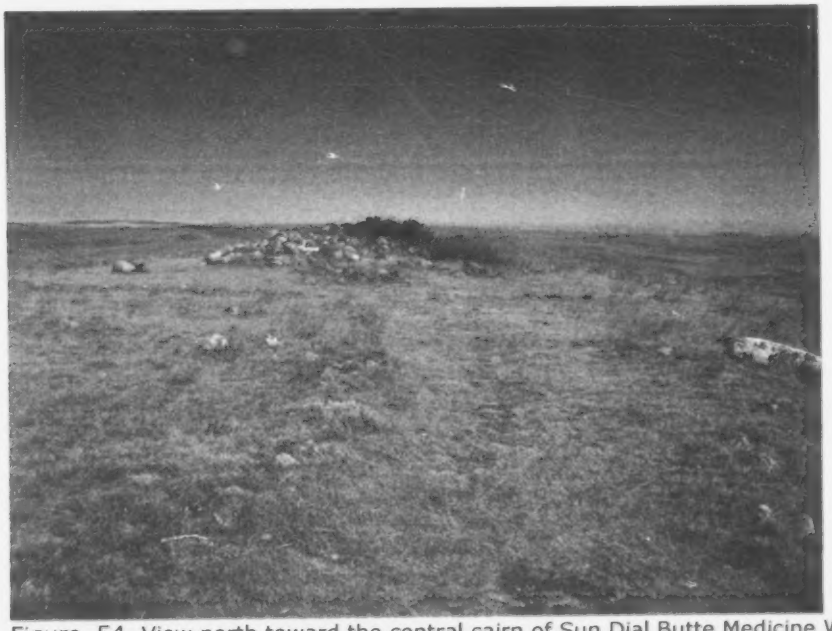


Figure 54. View north toward the central cairn of Sun Dial Butte Medicine Wheel. Recent cloth offerings visible at the cairn in this photograph.

Figure 55. View south toward Chief Mountain, from the Lee Creek area. The narrow ridge that constitutes the crest of the Mountain is approximately 6 km south of the Canada-U. S. border in northern Montana.

Chief Mountain

Chief Mountain is not within Alberta, but it is nevertheless an iconic and highly symbolic and sacred mountain to the Blackfoot and other indigenous people of southern Alberta. The Mountain occupies a central place in Blackfoot spirituality and mythology and warrants mention on this list for that reason. Among other things, Chief Mountain is a focal point for the indigenous practice of vision seeking or questing by First Nations people and many archaeologically and traditionally known vision quests focus on a view of Chief Mountain. The reason for its special status is at least partially based on its unique profile and position on the skyline of southern Alberta. Interestingly even people who have never seen or heard of Chief Mountain before recognize the mountain as having special significance when they see it for the first time.

Figure 56. A "stone man" effigy. This is an example of a small, but clearly significant ceremonial or otherwise important site that had been lost to traditional knowledge experts. The site has been rediscovered and can now be visited by traditional knowledge experts and others. This site is in the South Saskatchewan River Basin near Taber. This view is to the west. The effigy's leg's are in the foreground. Although obscured by vegetation, this effigy has a head at the top of the round body and two arms, or upper appendages.

Figure 57. This is a view of part of medicine wheel complex near the Red Deer River a short distance west of its confluence with the South Saskatchewan. This view is to the south.

The preceding sites are intended to provide examples of the extent of traditional knowledge and traditional land use within the South Saskatchewan River Basin area. These sites along with many other similar sites in the region continue to be used by First Nations people and are considered critical sites to the history of First Nations as well as indigenous belief systems and culture

Andy Blackwater (pers. comm. informant interview) sums up some knowledge of sacred sites and especially medicine wheels this way:

> They [the Old Ones or Elders] also talked about medicine wheels. I have asked many people [about these]. Some say they are called sun dials [because the represent] the sun...drawn on the earth, others have different names for them because they are not all the same. They are found in Blackfoot Territory [and] our ancestors talked about [and knew about] them. We have [now started to again see] these sites [and] also tipi rings and effigies where death happened. Some [sites] are just circular placements of rocks [and] those are known as vision quest sites. There must be others that are talked about in stories [and we need to find them and revisit them].
>
> Writing On Stone is called Writing On Stone for the reason that the old people told stories about [writing on stone or rock art]. The old ones told stories of their lives and their accomplishments on the rocks; when they travelled through they would record what happened on their trail. From [those stories and rock art] we can understand the past. These [rock art, medicine wheels and other sacred sites] will never cease to exist. I will say we as Akainaiwa leave our offerings after the Sundance [and] we leave the offerings [of] The Buffalo Women Society and also Horn Society [and these become sacred] This practice has never stopped...[and] practice evolved from the centre of our religion. I can't talk any further [about] that. It came from the pipe and the sacred items that were given to us those are what we have to respect.

Betty Bastien, a member of the Pikunni Nation describes medicine wheels this way (1993, 92):

> ...the rocks that make up the sacred rings of the medicine wheel are a direct communication link to the sky beings. These centres of communication are part of the most sophisticated technology of [Blackfoot and other] tribal people. They are places for learning the sacred way necessary for life. The rock rings of the medicine wheel are the link to the knowledge that is required to maintain the path of tribal reality and the balance of all worlds. These centres are premised upon maintaining the delicate balance of the human community with the rhythmic order of the universe. The medicine wheel is thus a learning centre that dates back [thousands of years].

Figure 58. A recently discovered tipi ring overlooking the Little Bow River. As Elder Andy Blackwater notes above, traditional use experts and Elders are now revisiting these types of sites and contributing to a growing body of knowledge of such sites.

Bastien's language and phrasing are complex and metaphorical; however, the idea of the sacredness of the features and the fact that they serve as symbols that serve to emphasize the sacredness and interrelationship of life and landscape is clear.

The above lists tend to define and delineate special sacred sites; however, another issue is the general sacredness of the landscape in the traditional view. This is a complex and multifaceted view, but it has been summarized by former Pikunni Chief, Leonard Bastien. Bastien discussing the cultural and spiritual importance of the Oldman River valley put it as follows (Bastien quoted in Hamel 1993, 16-17):

> Napi created the animals, birds and people and could converse with them. If Napi could talk with the animals, plants, birds and rocks, seeking their power to help him, it follows they must have spirits and must be sacred. From this comes the Indian beliefs that nothing is inanimate and therefore all is sacred. Rocks are sacred as a human life is sacred. It follows then that the Oldman River Valley, home for many of these birds, rocks, plants and animals is sacred as well.
>
> From these spiritual beings comes the contents of the medicine bundles, from which spiritual power is derived. The bundles are

an accumulation of physical objects which are reminders of the spiritual blessings given the owner.

The bundles are part of the cyclical connection that forms the Peigan [Pikunni] culture. It starts with the flora and fauna of the area which have spiritual power and confers that power to an individual of the tribe. The power is represented in a physical sense by the skins, or parts of the flora and fauna, collected and placed in the bundle. That bundle becomes a catalyst between humanity and the spiritual world.

The Beaver Bundle is the oldest, most complex of the spiritual powers or blessings conferred on the Peigan people. Almost every bird and animal known to the Peigans is represented in that bundle, accompanied by a song for each of them. The Beaver Bundler...shows the connection between man and nature.

The Oldman River valley is a sanctuary for the birds and animals of the plains and foothills. The Peigan contact with those animals and the plant life in the valley is the basis of the nation's entire religion. Without the valley as it is, existing medicine bundles would become vestiges of a dead culture, since input for change would not be possible. For the Peigan, the river, the valley, the plants and animals allow for the self-perpetuation of their Culture [original text from the Lethbridge Herald July 8, 1989].

MODERN RESOURCE USE ISSUES

This section briefly outlines and describes some of the problems and issues associated with present day use of traditional resources. This section does not address issues of aboriginal First Nations rights with respect to the exploitation of hydrocarbons or other natural resources that do not fall under the rubric of traditional uses. The use and sharing of wealth derived from oil and gas activity, mining, forestry, industrial and large scale agriculture water use and other such activities are not addressed here.

This section addresses issues and problems related to ongoing use of sacred sites, the ability to harvest naturally occurring resources and ensure that limited natural resources are maintained for future generations of First Nations and non First Nations people.

As noted in the introduction, very large numbers of people have lived in what is now Southern Alberta and indigenous population levels just prior to the arrival of Europeans were at or below a level that could be sustained by the resources and environment. The estimated pre-European population of the northern Plains varies widely from over 60,000 (University of Arizona and Blackfoot Community College 2006) to less than 10,000 (Kidd 1986, 27-29, citing Henry and Thompson 1897) Blackfoot people prior to the onset of

major and disastrous disease epidemics that swept through the area, in the mid and latter parts of the 18th century. Lowie (1954) estimates the Blackfoot population at about 15,000 in 1780 after the first major epidemics had swept through their territory. Lowie may have been low in this 1780 estimate, but he also includes figures of 9,000 Blackfoot in 1801, 7,600 and 1855 and 4,600 in 1932. No matter how accurate these population numbers, the precipitous decline due to disease and other factors is obvious. Apart from the human disaster associated with the population decline, it is clear that significant traditional knowledge and information was lost. This coupled with multiple generations of residential school education that at best deemphasized traditional knowledge and traditional uses and the fact that for a significant part of the 20th century First Nations peoples were largely confined to reserves meant that many traditional use areas fell into disuse and many important sacred sites and traditional knowledge of the landscape was lost.

Figure 59. Blood Tribe Elders examining a newly discovered site feature east of Head Smashed In Buffalo Jump during a traditional land use assessment. This site although small is potentially ceremonially and spiritually significant and was not known or recorded until discovered by Elders.

Figure 60. Blackfoot Elders and others preparing to conduct a blessing ceremony to honour a grouse lek location near Majorville Medicine Wheel. Technicians record the site area and stories about the area and grouse. This ceremony demonstrates the central place and importance of plants and animals to Blackfoot culture.

Remnants of this knowledge, however, remained in the memories of Elders and even though the locations of sites such as Sun Dial and Majorville Medicine Wheels were lost and as was knowledge of their precise original functions lost, remaining information was passed down to generations of First Nations people who had not had the opportunity to visit these sites.

Coupled with this loss of use, many sites were destroyed, especially in the first half of the 20th century with modern and intensive agriculture, forestry and other development enterprises such as oil and gas exploration.

By the mid 20th century, there was general recognition in the scientific and academic community of the value of the remaining sites in Alberta and the rest of Canada, and legislation was enacted protecting historical resources such as medicine wheels and similar sites. Environmental awareness and the need to protect the remaining natural areas increased in the second half the century and there was a growing recognition of the importance and role of traditional knowledge and land use.

Over the last few years, First Nations have started to revisit long abandoned sites and areas, to reclaim their cultural heritage, and to return sites and areas to active use.

The primary current problems are twofold and identified here, but we do not provide any suggestions for solutions to these problems as a discussion of the possible solutions is beyond the scope of this report. The first problem is

that despite increased levels of protection and awareness of the value of the natural landscape, historical sites and sacred sites, most are not adequately protected from disturbance or destruction. There are currently on going discussions and debates regarding the desire for continued energy development in the Majorville Medicine Wheel and other sensitive areas and the desire to restrict development in those areas to ensure the sites remain sacred and undisturbed by modern development. The push and pull of the economic need for development and the cultural need for protection are exceedingly sensitive issues and are front and centre in the minds of those persons interested in either development or protection and how to best achieve consensus. The second and related problem is that the importance of many sites is not known or well understood and those sites are not part of the development and renewal of traditional knowledge primarily because they are not accessible by First Nations people or experts. The sites cannot be recognized as traditionally important or significant until they can be viewed and assessed by traditional experts and many factors prevent them from being revisited. This problem is self-perpetuating and circular and needs innovative and creative approaches to solve.

There are other issues such as the desire to return to the greater use of natural plant and animal resources and the fact that all or the vast majority of those resources are now much more restricted in area and numbers due to modern development. There is a need to preserve what is left, but at the same time provide opportunities for responsible and sustainable use of natural resources. Elder Andy Blackwater (pers. comm. informant interview) puts it this way:

> We as Blackfoot people believe that these [traditional use and sacred] areas still have a presence and therefore should not be disturbed, so that these areas shall remain for the future generations. Our young can say I am going to that particular area and seek a vision or gift, [so] these places should remain. We as a people have reached a time where it is very difficult in that many different factors have come into play in our lives [which detracted from our traditional ways]. We are now [learning to and] trusting our traditional ways more...These are the things that we are taught today. [Modern life and non traditional ways have] changed that [which was]...[T]he rivers and hills and the medicinal plants that have been given to us sustain life. I don't think it has changed all that much, these sacred things that we own came from these areas. People say that particular area is where some one received a gift or it was transferred to that person. We were pitied with a mysterious power from these sites [and we need to maintain those sites].
>
> We only ask [that non First Nations people] respect our ways the same way you respect your sacred ways. We respect our lands in [as]"sacred lands". We have our spirit beings just as the white people have theirs and we do not expose our sacred ways too much [and] there are things that we revere; and we will not talk about those things. Our [beliefs and religion that we

> cannot share with everyone is saved for] the future generations that are going to take part or become a part of the sacred ways of the Blackfoot. We are protecting these ways for them. That is why we like to be involved in what's happening around us to protect our sacred way of life. The [larger culture] has developed much of our lands for monetary wealth and have ruined much of the tracts that were left for us to protect. [T]hat is [why we believe] we are right about what we say [to save and protect] the Traditional Blackfoot Lands that we know [and remain].

INFORMATION AND RESEARCH GAPS

This section attempts to identify gaps in data and information that were identified during the course of this research. Some of these gaps are a function of the nature of the parameters of this project and its completion and some gaps are a function of more complex issues. It is possible and indeed likely, given the complexity of the subject matter, that many other data gaps and weaknesses in both the quality and quantity of information and data presented here could be identified. For example, we note that there are often disagreements between descriptions of the use of an individual resource from one data source to another. These qualitative aspects require further research to determine which description is correct or whether both are possible. In general, we have taken data from published sources and first person accounts at face value; however, more research is required to examine qualitative aspects of data in the published record.

The idea of traditional knowledge and traditional land use research is relatively new in Alberta and there is a great deal more to learn. This section simply identifies some of the major issues that cannot be effectively addressed in this review and summary.

The intention of this project was to gain as much information as possible directly from First Nations Elders and traditional use and traditional knowledge experts; however, in the final analysis, only limited information was derived from these sources. The reasons for this are threefold.

Most of our requests for interviews or invitations to participate in this exercise were turned down simply because of the tight time frame required for completion of this report. Potential informants wanted to know what they were participating in, what any information they provided iwa going to be used for, how it was to presented and to whom and wanted time to think about how to give information and to whom they awee willing to give it. In the end, most potential informants simply stated that while the project was worthwhile there was not sufficient time to contemplate about the information and provide it. This situation was exacerbated by the relatively restricted budget for the project which prevented us from travelling to other areas and engaging translators and other assistants who could assist in conducting interviews. This latter factor was not considered significant; the time frame issue was a greater problem in most respects.

Secondly, no non-Blackfoot First Nations people were able to directly participate in the project. This, obviously, meant that our direct informant information and much of the research was derived from Blackfoot people. We do not regard this as a serious data gap, but it is worth noting. This matter is discussed in the body of the report and not dealt with further here.

Thirdly, we had hoped to be able to take at least some first person informants to some sites and interview them there; however, weather during the project period and lack of time prevented this. It was our belief some on-site interviews in some of the sites mentioned in the text of this report may have triggered some memories or allowed informants to speak more directly about some of the sites and the traditional knowledge associated with those sites.

More generally, there is a great deal of literature and research, including historical documents and first person accounts, ethnographical and anthropological and archaeological literature that discusses and researches traditional knowledge. The Blackfoot people are relatively well represented in this literature, but there are significant gaps. It is beyond the scope of this report to critically assess the sources and written documentation; however, in general the following comments apply. The historical accounts written by early Europeans that visited the area and even lived with the Blackfoot tend to reflect the European sensibilities of the writers. For the most part, these writers were not highly trained, objective recorders of history or information, and the information they present is filtered through their own ideologies and sociopolitical views. This situation continues in historical and ethnographical writing and research to this day; however, for the most part modern researchers recognize this difficulty and try to avoid the worst pitfalls of their personal bias and sociopolitical bents. Historical accounts therefore tend to miss many important elements of culture. Furthermore, virtually all historical accounts were written by males and this introduces a bias regarding the reporting of cultures and cultural practices in both the economic and ceremonial/religious realms.

The vast majority of historical literature and early accounts of this area concentrate on Blackfoot informants. This is partially a function of the dominance of Blackfoot people in the era when traders and explorers were entering the area.

Very few of the accounts are written by First Nation experts. There are many reasons why this is the case and we cannot detail them here; however, it is our view that this represents an important gap in traditional knowledge and information in the modern era. There are some exceptions; for example, Eldon Yellowhorn, a professional academic and member of the Pukanni Nation is highly regarded in academia and does a masterful job of writing and research.

A significant data gap is simply the one created by First Nations Elders and traditional expert's lack of ability to visit and see many important traditional

sites and areas first hand. There are thousands of recorded archaeological sites and hundreds of sacred sites in southern Alberta and it is beyond the capability of most experts and Elders to visit these sites and interpret them directly. This is considered a major shortcoming and as more of the current generation of Elders pass away and information they learned from their grandparents and great grandparents gets more tenuous. Given the period during which many First Nations were largely restricted to reserves and the nature and extent of the residential school period, educational initiatives are needed now to ensure traditional knowledge is passed on to the next generation of Elders and experts.

SUMMARY

As noted at the outset, this report was intended to provide an overview of traditional knowledge and traditional land uses within the South Saskatchewan River Basin. We have attempted to illustrate this knowledge and land uses with examples and where possible, first person and historical information as well as information derived form archaeological, anthropological and other sources.

It is clear that many traditional values are completely compatible with modern 21st century ideas and ideals of resource sustainability, preservation of the natural settings and landscapes that remain and protection of the regions' native flora and fauna and the resources, such as rivers, soils and environment that support those plant and animal species. The idea of a sacred landscape appears to be at least partially at odds with modern western secular culture; however, a more holistic view of the idea of sacredness is warranted. In western secular terms, this sacredness can be interpreted as deep respect for natural processes and the natural environment.

Traditional views and traditional knowledge are far more complex and nuanced than many appreciate at first glance. The in-depth and detailed ecological knowledge, including what are best called sustainability practices and a conservation ethic practiced by pre-European cultures are very much in tune with modern ideals and philosophy. We know that First Nations use of the landscape and its resources was more complex than earlier accounts would suggest and while those cultures undoubtedly made mistakes and suffered the consequences of those mistakes as all cultures do, they did sustain themselves and their environment over thousands of years, a feat modern cultures and most past "complex" civilizations either have not yet done or failed to do.

REFERENCES CITED

Alberta Culture and Community Spirit
2009 www.culture.ab.ca

Anderson, S.
1916 *Blackfoot's Masterpiece Forum*, 55: 679-683

Arthur, G
1975 *An Introduction to the Ecology of Early Historic Bison Hunting Among the Northern Plains Indians*, National Museum of Man Mercury Series 37, Archaeological Survey of Canada, Ottawa.

Avery E.H.
1920 Blackfeet Indians, *Outlook*, 126:434-435.

Bamforth, D. B.
1988 *Ecology and Human Organization on the Great Plains*. Plenum Press, New York

Bastien B.
1993 Sacred Relationships and Sacred Places of Tribal People, in *Kunaitupii Coming Together on Native Sacred Sites*, edited by B. O. K. Reeves and M. A. Kennedy, Archaeological Society of Alberta, Calgary.

Blackfoot Gallery Committee
2001 *Nitsitapiisinni The Story of the Blackfoot People*, The Glenbow Musuem, Calgary.

Bonnichson, R. and S. Baldwin
1978 Cypress Hills Ethnohistory and Ecology, *Archaeological Survey of Alberta Occasional Paper No. 10*, Alberta Culture, Edmonton

Butzer, K. W.
1992 The Americas Before and after 1492: An Introduction to Current Geographical Research in *Annals of the Association of American Geographers*, Vol 82 No. 3, pp 345-368.

Calder, J. M
1977 *The Majorville Cairn and Medicine Wheel Site, Alberta*, National Museum of Man Mercury Series No. 62, Archaeological Survey of Canada, Ottawa.

Catlin George
1989 *North American Indians* Penguin, New York.

Cocking, Matthew
1907 Matthew Cocking's Journal. Being the Journal of A Journey Performed by Mr. Matthew Cocking, Second Factor at York Fort, In Order To Take A View of the Inland Country, And To Promote The Hudson's Bay

Company Interests, Whose Trade is Diminishing By The Canadians Yearly Intercepting Natives On Their Way To The Settlements. 1772-1773. Royal Soc. of Canada., Proc. and Trans., Vol 1.

Coues, E. (editor)
1987 *The Manuscript Journals of Alexander Henry and David Thompson, 1799-1817*, Ross and Haines Inc., Minneapolis.

Cowan R.
1991 The sacred turnip: dietary clues gleaned from tuber traditions - role of the prairie turnip in the life of the Blackfoot Indians, *Science News*, May 1991

Dempsey, H. A.
2002 *Firewater The Impact of the Whiskey Trade on the Blackfoot Nation*, Fifth House Ltd., Calgary.

Duke, Philip
1991 *Points in Time: Structure and Event in a Late Northern Plains Hunting Society.* University Press of Colorado

Ewers, John
1958 *The Blackfeet: Raiders of the Northwestern Plains*. University of Oklahoma Press, Norman.

1968 *Indian Life on the Upper Missouri.* Norman: University of Oklahoma Press, Norman.

Farr, W. E.
1984 *The Reservation Blackfeet, 1882-1945,* University of Washington Press.

Foster, J., D. Harrison and I. S. MacLaren
1992 *Buffalo*, University of Alberta Press, Edmonton.

Forbis, R. G.
1960 Some Late Sites in the Oldman River Region. In *Contributions to Anthropology 1957*, National Museum of Canada, Bulletin 180, Ottawa.

Gray, H. E. (aka Long Standing Bear Chief)
1992 *Ni-Kso-Ko-Wa: Blackfoot Spirituality, Traditions, Values and Beliefs,* Spirit Talk Press in Browning, Montana

Grinnell, George Bird
1892 Early Blackfoot History *American Anthropologist*, Old Series, 5:153-164.

1962 *Blackfoot Lodge Tales: The Story of a Prairie People,* University of Nebraska Press (reprint of 1912 edition). Full citation needed

Hamel, P.
1993 The Land Question: Aboriginal Spirituality and Old Testament Connections, in *Kunaitupii Coming Together on Native Sacred Sites*, edited by B. O. K. Reeves and M. A. Kennedy, Archaeological Society of Alberta, Calgary.

Higgs, E. S. and M. R. Jarman
1972 The Origins of Plant and Animal Husbandry, in *Papers in Economic Prehistory,* edited by E. S. Higgs, Cambridge University Press, Cambridge.

Hellson, J. C. and M. Gadd
1974 *Ethnobotany of the Blackfoot Indians*. National Museum of Man Mercury Series, Canadian Ethnology Service No. 19. National Museums of Canada, Ottawa.

Hendey, A.
1907 York Factory To The Blackfoot Country: The Journal Of Anthony Hendry, 1754-1755. Edit. by Lawrence J. Burpee, Proc and Trans. of the Royal Soc. of Canada, 1907, 3d Series, Vol. 1.

Hind, H. Y.
1859 NorthWest Territory, Reports of Progress, Together With A Preliminary and General Report On the Assiniboine and Saskatchewan Exploring Expedition. Toronto.

Hungry Wolf, Adolf
2006 *The Blackfoot Papers (published in four volumes), Volume 1: Pikunni History and Culture, Volume 2: Pikunni Ceremonial Life, Volume 3: Pikunni Porfolio, Volume 4: Pikunni Biographies*, Good Medicine Cultural Foundation, Skookumchuck, B. C.

Jenness, D.
1932 The Blackfoot. In *The Indians of Canada* National Museum of Canada, Ottawa, Bulletin 65:317-323.

Johnson, A. M. (editor)
1987 *Saskatchewan Journals and Correspondence, 1795-1802, Vol. 26*, Hudson's Bay Record Society, London.

Johnson, D, L. Kershaw, A. MacKinnon, J. Pojar
1995 *Plants of the Western Boreal Forest and Aspen Parkland*, Lone Pine Publishing and the Canadian Forest Service, Edmonton and Vancouver.

Kidd, K. E.
1986 *Blackfoot Ethnography*, Archaeological Survey of Alberta Manuscript Series No. 8, Alberta Culture, Edmonton. Publication of a 1937 University of Toronto Masters Thesis.

Klassen, M. A.
2003 Spirit Images, Medicine Rocks: The Rock Art of Alberta, in *Archaeology in Alberta A View from the New Millennium*, edited by J. W. Brink and J. F. Dormaar, Archaeological Society of Alberta, Medicine Hat.

Kormondy E. J and D. E. Brown
1998 *Fundamentals of Human Ecology*, Prentice Hall, New Jersey.

Lowie, Robert H.
1954 *Indians of the Plains*. American Museum of Natural History, originally published by McGraw Hill, New York.

McClintock, Walter
1999 *The Old North Trail, or, Life, Legends, and Religion of the Blackfeet Indians.* University of Nebraska Press Lincoln (reprint, original published in 1910).

MacLean, John
1890 The Blackfoot Confederacy Proceedings 1888-89, Canadian Institute, Toronto, Third Series, Vol. 7.

Mirau, N. A.
1995 Medicine Wheels on the Northern Plains: Contexts, Codes and Symbols in *Beyond Subsistence: Plains Archaeology and the Postprocessual Critique*, P. Duke and M. C. Wilson editors, University of Alabama Press, Tuscaloosa.

Moors, M.
2007 Tipi Rings, Ceremonial Sites and the Siksikaitsitapi of Southern Alberta, unpublished Masters Thesis, Department of Archaeology, University of Calgary, manuscript in possession of the authors.

Nakashima, D and M. Roue, UNESCO
2002 Volume 5, Social and economic dimensions of global environmental change, in *Encyclopedia of Global Environmental Change. Indigenous Knowledge, Peoples and Sustainable Practice*, edited by P. Timmerman, Wiley and Sons, Chichester, U.K.

Oetelaar, G. A.
2008 Moving Beyond Technical Imperatives: The Role of Ceremonial Facilities in Communal Foraging, paper presented at the Sixth World Archaeological Congress, Dublin, 2008. (paper on line at Nevada.archaeology.org)

Ross, M.
2008 *Weasel Tail: Stories told by Joe Crowshoe Sr. (Aapohosyo'yiis), A Peigan Blackfoot Elder.* Newest Press, Edmonton.

Samek, Hana
1987 *The Blackfoot Confederacy, 1880-1920: A Comparative Study of Canadian and U.S. Indian Policy.* Albuquerque: University of New Mexico Press

Schultz, J. W.
1916 Blackfeet Tales of Glacier National Park, Houghton Mifflen, New York.

1962 Blackfeet and Buffalo: Memories of Life Among the Indians, University of Oklahoma, Norman

Scriver, B.
1990 *The Blackfeet: Artists of the Northern Plains.* Kansas City: The Lowell Press, Inc.

Tobias, T.
2000 *Chief Kerry's Moose: A Guidebook to Land Use and Occupancy Mapping, Research Design and Data Collection.* Union of B. C. Indian Chiefs and Ecotrust Canada, Vancouver, B. C.

Wedel, W.
1978 The Prehistoric Plains, in *Ancient North Americans*, edited by J. D. Jennings, W. H. Freeman and Company, New York, pp. 203-229.

Wilkinson, K
1999 *Wildflowers of Alberta, Lone Pine Publishing and University of Alberta Press,* Edmonton.

Wilson, Edward F.
1888 Report On The Blackfoot Tribes. Brit. Assoc. Adv. Sci., Report of 57th Meeting, London.

Wilson, M. C.
1992 Bison in Alberta: Palaeontology, Evolution and Relationships with Humans in *Buffalo*, edited by J. Foster, D. Harrison and I. S. MacLaren, University of Alberta Press, Edmonton. pp. 1-18

Uhlenbeck, C. C.
1911 *Original Blackfoot Texts*. Verhandelingen der Koninklijke Akademie van Wetenschappen te Amsterdam

United Nations Environment Programme
2008 United Nations Environment Programme definitions and descriptions www. unep.org, UNEP, Division of Environmental Policy Implementation, Nairobi, Kenya

United States Department of Agriculture (USDA).
2009 The PLANTS Database (http://plants.usda.gov, 15 March 2009). National Plant Data Center, Baton Rouge, LA 70874-4490 USA

University of Arizona and Blackfeet Community College
2006 Native Nutrition and Foods Initiative Research, Native peoples Technical Offices, University of Arizona, Tucson, paper on line at nptao.arizona.edu.

Verbicky-Todd, E
1984 *Communal Buffalo Hunting Among the Plains Indians*, Archaeological Survey of Alberta Occasional Paper No. 24, Alberta Culture, Edmonton.

Vickers, J. R.
1991 Seasonal Round Problems on the Alberta Plains, *Canadian Journal of Archaeology* Vol 15.

Yellowhorn, E.
2003 Before the Alberta Century in *Archaeology in Alberta A View from the New Millennium*, edited by J. W. Brink and J. F. Dormaar, Archaeological Society of Alberta, Medicine Hat.

Suggested Reading

The following list is brief but provides a cross section of easily accessible literature. Many of the sources noted here are referenced in the citation section, above; however, we have included some works that are more general in nature. In general the works listed here are not formal academic works, but are histories and/or are meant to be read by a general audience. There is a large amount of specialized academic literature and those works are not listed here. The suggested reading is not an extensive or inclusive list and again many other popular and academic works related to the subject matter are available.

Cocking, Matthew
1909 *An Adventurer from Hudson Bay. Journal of Matthew Cocking from York Factory to the Blackfeet County 1772-73.* Printed for the Royal Society of Canada, Ottawa.
This is mandatory reading for historians and others interested in some of the earliest European accounts of southern Alberta. Cocking was not a professional writer and his descriptions and details are often lacking and idiosyncratic, but he does provide many important details about First Nations and the landscape in the late 18th century.

Dempsey, Hugh A.
1989 *Red Crow Warrior Chief,* University of Nebraska Press, Lincoln.
Dempsey has written many accounts of Blackfoot and First Nations people and their history in the Post-contact period, that is, after the arrival of Europeans and like his other works, this is a well-written and researched work. Any of Dempsey's works about First Nations are worth examining. Two others are briefly noted here.

Dempsey, Hugh. A.
1994 *The Amazing Death of Calf Shirt and Other Blackfoot Stories*, Fifth House, Calgary. This is a collection of short stories recounted by Dempsey that "were at one time well known to Blackfoot elders" (Dempsey's phrase in his introduction to the book). The stories included factual data and some have mythical or mystical elements. They are interesting reading and provide colourful descriptions and good historical information.

Dempsey, Hugh A.
2002 *Firewater: The Impact of the Whiskey Trade on the Blackfoot Nation*, Fifth House, Calgary. This is an account of the whiskey trade in Canada and northern Montana in the latter 19th century and provides some good historical data on this period. The book is focused largely on American whiskey traders, but there are insights into the Blackfoot people and the impact on them by Euro-American traders.

Ewers, John C.
1967 *The Blackfeet: Raiders of the Northwestern Plains,* University of Oklahoma Press, Norman. Like many historical and early anthropological accounts the 1967 version is a reprint, but most copies are identical. Ewers is a well known and respected academic and researcher. First published in 1958, this volume traces the history of the Blackfeet from pre-horse days through to the 1950's. The author displays a thorough understanding of his subject, and extensively annotates his work. Where he could he uses first person accounts. This and most of his other works on Plains cultures are well-written histories of the Blackfeet. Most of his first hand information and data is from the U. S, but the general treatment includes Canada. Any of Ewers works on the Blackfoot are worth reading.

Grinnell, George Bird.
1962 *Blackfoot Lodge Tails: The Story of a Prairie People*, University of Nebraska Press, Lincoln. Grinnell was an early anthropologist and spent a significant amount of time in Blackfoot country, mostly in Montana. His observations of the social organization, daily life, and customs of the Blackfoot are thorough and well researched. As is the case with Ewers, any of Grinnell's work on Blackfoot people is worthwhile.

Hellson, John C and M. Gadd
1974 *Ethnobotany of the Blackfoot Indians,* National Museum Mercury Series, Ottawa. Hellson and Gadd provide valuable information on Blackfoot plant use based on information gathered from Elders. Not a particularly entertaining book to read, but a valuable and worthwhile contribution.

Hungry Wolf, Adolf.
2006 *The Blackfoot Papers Volumes 1 to 4.*Good Medicine Cultural Foundation, Skookumchuck, B.C. This work is published in four large format books and documents many aspects of Blackfoot life from earliest times to the present. The volumes are richly illustrated and contain a very large amount of information derived from historical resources and accounts and first person interviews. While the name Hungry Wolf is not ethnically

Blackfoot, he has spent many years living and working with Blackfoot people. These volumes are very much worthwhile. Hungry Wolf has a number of other publications on the Blackfoot and these are worth reading.

Johnston, A.
1987 *Plants and the Blackfoot*, Lethbridge Historical Society, Lethbridge
This short book is similar in intent to Hellson and Gadd, but is shorter and easy to read. It contains lists of plants used by the Blackfoot and other First Nations people along with some interesting and valuable historical information.

Kidd, K. E.
1986 *Blackfoot Ethnography*, Alberta Culture, Historical Resources Division, Edmonton. This was originally written in 1937 as a Masters Thesis and is a general ethnographical account of the Blackfoot and is focused on Canada. The book contains good information and ethnographical data and Kidd has reviewed and cited most of the classic historical and ethnographic accounts of the Blackfoot. The book is a good summary of information from more difficult to obtain sources.

Lowie, Robert H.
1954 I*ndians of the Plains*. American Museum of Natural History, originally published by McGraw Hill, New York. This book is considered a classic anthropological study of Plains cultures. It is based largely on Lowie's field work conducted between approximately 1906 and 1930 when he spent time living with a number of Plains tribes, most notably the Crow Indians. He spends considerable time detailing cultural practices of traditional Plains peoples such as marriage practices and art, but also discusses economies and foods that Plains people consumed. It is, however, a general treatment and Lowie did not spend a significant amount of time on the Northern Plains or Alberta; therefore his discussion of the Blackfoot is brief and based the work of others. It was written in the first half of the 20th century and so suffers from some old and now outdated bias, but it has very good, albeit basic data viewed through the eyes of a Euro-American academic.

McClintock, Walter
1999 *The Old North Trail, or, Life, Legends, and Religion of the Blackfeet Indians.* University of Nebraska Press Lincoln (reprint, original published in 1910). This work is considered a classic in Blackfoot history and contains a wealth of information on the Blackfoot way of life in the latter 19th century. McClintock records history, traditional knowledge and lifeways in great detail and writes in a manner designed for popular reading. It has, however, been widely acclaimed as a genuine and well written academic account that is free of some later works that are burdened with academic style prose and are heavily theory laden. Some academics claim the work is a romanticized view of traditional Blackfoot culture and that is evident in portions of the book; however, again it is a well written and mostly objective account. Perhaps one of the greatest contributions of the book and McClintock are his photographs of traditional lifeways, at least as they were in the late 19th century. McClintock's time with the Blackfoot was more limited than many other

ethnographers and he spent far less of his time in the west in Canada than he did with the Southern Blackfoot in Montana; however, again it is considered a classic work and has been used by modern Blackfoot people to reacquaint themselves with traditional ways. McClintock wrote several other books on the Blackfoot and all are worthwhile reading.

Mountain Horse, M.
1989 *My People the Bloods*, Glenbow Museum and Blood Tribal Council. This book, edited by Hugh Dempsey, is a first person account written by Mountain Horse. Mountain Horse was a member of the Blood Tribe and is a noted World War I veteran. Mountain Horse was born in 1888 and the book is composed mostly of his recollections of his life in the later 19th and early 20th centuries. Very much worthwhile for interesting and valuable insights to this period of Blackfoot history.

Ross, M.
2008 *Weasel Tail: Stories told by Joe Crowshoe Sr. (Aapohosyo'yiis), A Peigan Blackfoot Elder.* Newest Press, Edmonton. As the title suggests this book is largely composed of stories of the life of Joe Crowshoe, a highly respected Elder and former leader of the Piikani. It is worth reading for its commentary on the early reserve period and provides some important insights with respect to traditional knowledge, especially with respect to traditional religion, spirituality and mythology. The book also includes some indirect historical accounts of the pre-reserve period. This book is considered by the authors of this report to be an important contribution to published literature on later Blackfoot history and an important record of an individual (Crowshoe) who dedicated much of his life to preserving Blackfoot history and attempting to present that history.

Wissler. Clark
2007 *Mythology of the Blackfoot Indians*. Kessinger, Publishing, New York. Wissler is another early American anthropologist who wrote widely about the Blackfoot and the northern Great Plains. This book was originally published in 1908 by the American Museum of Natural History. Included are tales with ritualistic origins emphasizing the prototypical Beaver-Medicine and the roles played by Elk-Woman and Otter-Woman, and a presentation of Star Myths, which reveal the astronomical knowledge of the Blackfoot Indians. Wissler collected these stories from Blackfoot people during his time in Blackfoot Country. Any of Wissler's works about Blackfoot People and the Northern Plains are worthwhile.